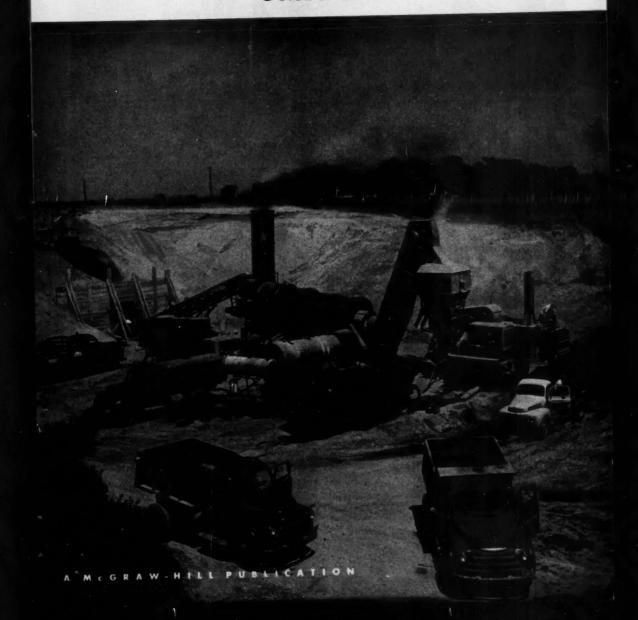
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# CONSTRUCTION

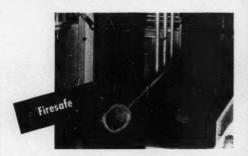
METHODS AND EQUIPMENT

October 1951





"Mighty considerate of them to build this place out of slip-resistant 4-Way Safety Plate."



For greater safety under foot, in your plant and on your products

### Inland 4-Way Safety Plate







INLAND STEEL COMPANY, Dept. CME 101 38 South Dearborn Street • Chicago 3, Illinois Soles Offices: Chicago, Davenport, Detroit, Indianopolis Kenton City, Milwaylan New York 51, Louis and 52 Page

STOCKED BY LEADING STEEL WAREHOUSES



#### New Bulletin with New Ideas—

Just Out! Bulletin F1. Complete engineering and application data. Send for it!

### B.F. Goodrich



### Tire cut-resistance proved on steel slag road bed

THE 30-ton mobile crane pictured above is one of 20 vehicles used by a salvage operator in the heart of the Gary, Indiana steel mill area. The tires that carry these vehicles roll over the toughest kind of road beds... razor-sharp slag, a bed of jagged edges. A bulldozer slices the top off a slag pile—and that's the road. Here dump trucks, bulldozers and truckmounted cranes are in service in all kinds of weather.

These trucks, however, are 100% B. F. Goodrich equipped and there has not been one single road delay caused by tire trouble since these BFG's have been in service.

B. F. Goodrich tires were selected for use because of their superior cut and bruise resistance. The operator has found that the special tread compounds used in B. F. Goodrich tires and the unique tread design of B. F. Goodrich Universals keep cutting to an absolute minimum. These tires have greater bruise resistance because they are made with the patented B. F. Goodrich nylon shock shield. Strong, elastic layers of nylon are built in between the tread rubber and the cord body. Under strong impact, these nylon cords stretch and work together to absorb and distribute the shock evenly. This special feature is found

in all BFG tires of 8 or more plies at no additional cost.

No matter what kind of off-theroad service you demand, there's a special B. F. Goodrich tire to fill your needs. Let your local dealer help you get better service and lower operating overhead. The B. F. Goodrich Company, Akron, Ohio.





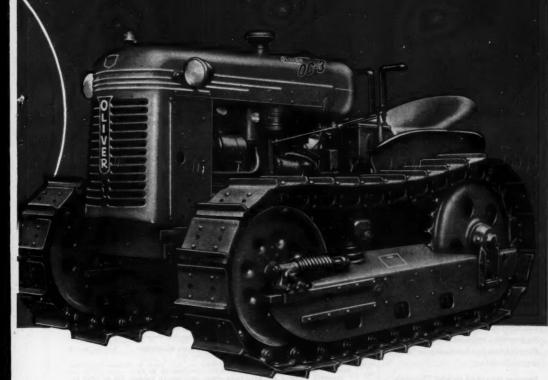
Here's the greatest little crawler tractor you've ever seen... the new Oliver Industrial "OC-3". It's ideally balanced for most effective loading and dozing... engine is mounted back so that front of tracks and radiator are practically in line. This better balance gives you 40% more lift with a front end loader... does a superior job of dozing and grading because blade is mounted close to the tracks for easier handling... precise control! And, operators find this bal-

anced tractor far easier to handle . . . far less fatiguing.

The new Oliver Industrial "OC-3" gives you a full 22 drawbar horsepower... plenty of power for jobs in its size. It's ruggedly built for the tough jobs... keeps maintenance costs down, Complete accessibility makes servicing easy.

For the complete story on the new Oliver Industrial "OC-3" and how it can help your operations, see your Oliver Industrial Distributor.

... far better DOZING



#### THE OLIVER CORPORATION

Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

A complete line of industrial wheel and crawler tractors



OLIVER





Reduce hat inventories. Headbands sized in one minute. Save Time! Entire headband assembly removed in six seconds...replaced in six seconds. Shapes to the head instantly for "fishing hat" comfort.

Stronger-than-steel molded Fiberglas crowns are the safest ever built; available in your choice of vivid, permanent colors and white or black.

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### CONSTRUCTION

#### METHODS AND EQUIPMENT

Volume 33, Number 10 OCTOBER 1951

Established 1919

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Drydock Rebuilt While Kept in Servic Frequent flooding and dewe contractor's operations, di	itering of dock complicates
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OCTOBER 1951

CONSTRUCTION METHODS AND EQUIPMENT Member ABC and ABP

Vol. 33-No. 10

Member ABC and ABP
Published monthly by McGraw-Hill Publishing Co., Inc., James H. McGraw (1860-1948)
Founder. Publication office, 330 W. 42nd St., New York 18, N. Y.
Executive. Editorical and Advertising offices: McGraw-Hill Building, 330 W. 42nd St.,
New York 18, N. Y. Curis W. McGraw, Fresident; Willord Chevolier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasure; John J. Cooke, Secretary: Paul Montgomery, Senior Vice-President and Director of Advertising; J. E. Blockburn, Jr., Vice-President
and Director of Advertising; J. E. Blockburn, Jr., Vice-President
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and Director of Circulation.

Subscriptions: Address correspondence to Construction Methods and Equipment—
Subscription Service, 330 W. AZad St., New York 18, N. Y. Allow ten days for change of address. Please indicate position and company consection on all subscription orders.

Single copies 35¢. Subscription rates—United States and possessions \$2.00 a year; \$3.00 for two year; \$4.00 for three years. Canada \$4.00 a year; \$5.00 for two year; \$8.00 for three years. All other countries \$15.00 a year; \$3.00 for two years; \$8.00 for three years. All other countries \$15.00 a year; \$9.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for two years; \$10.00 for three years. All other countries \$15.00 a year; \$10.00 for two years; \$10.00 for two years; \$10.00 for two years; \$10.00 for two years; \$10.00 for three years.

### 3-Inch 'Incor' Icing ON A 11/2-ACRE CAKE



ASBESTOS CEMENT BOARD

PURLINS 25" Q.C.

Owner: HENRY PAPE, INC., Warehouse, Garage & Office Building, Glendale, L. I. Architect: WALTER MONROE CORY, New York General Contractor: W. J. BARNEY CORPORATION; New York Roof Contractor: PORETE MANUFACTURING COMPANY North Arlington, N. J. 'Incor', 4400 bags: JAMAICA PARAGON PLASTER CORP.: Jamaica, L. I.

• Here is a roof fill that fills the bill-economical, lightweight, fireproof, high insulating value.

On this well-designed building, the 63,000 sq. ft. of Poretherm roof-deck consists of 1/4" asbestos-cement sheets, supported on lower flanges of sub-purlins, and a fill of 3" poured-in-place, soap-frothed 'Incor' slurry -6" over refrigerated area.

The concrete on hardening bonds to the asbestoscement sheets, providing ample strengths for safe working loads. Insulating value of 3" slab is equal to 11/2" cork; weight, 10.5 lb. per sq. ft.

For this roof fill, slow-moving mixer blades fold a froth of liquid soap, water and air into the 'Incor'\* slurry, to a smooth, even consistency. Then the mix is chuted into a pneumatic dispenser, kept in continuous operation by two mixers.

'INCOR' 24-HOUR CEMENT provides greater strength in less time, permits workmen to get on the roof sooner, thereby speeding completion. Another example of know-how, sparked by ingenuity, taking full advantage of dependable 'Incor' performance.



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# MORETRENCH CORPORATION MAKE A WET JOB PAY! contact MORETRENCH A MORETRENCH WELLPOINT THAT'S THE WAY For pumping,



Look at the record! Of the thousands built, 9 out of 11 Euclids are still in use today. That's proof that "Eucs" have the rugged strength and staying power to give profitable performance year after year under a wide range of operating conditions.

You can profit by the experience of Euclid owners. Over 60% of all "Eucs" sold are repeat orders! Leading contractors and industrial users buy Euclids because they are designed and built for heavy off-the-highway hauling. They're job proved for high production at the lowest cost per ton or yard moved.

Rear-Dump Euclids of 10 to 34-ton capacities have loaded top speeds up to 35.7 m.p.h., with diesel engines of 125 to 400 h.p. Bottom-Dump "Eucs" range in capacity from 13 to 25 cu. yds., have diesel engines of 190 to 300 h.p. . . . top loaded speeds up to 34.4 m.p.h.

Write for information on the complete line of Euclid earth moving equipment or call your Euclid Distributor today.

The EUCLID ROAD MACHINERY Co. Cleveland 17, Ohio

CABLE ADDRESS: YUKLID



गिनारिटारिए



### CONSTANT-CAPACITY Clutch

Based on an entirely different application of the toggle principle, this new LIPE constant-capacity CLUTCH compensates for wear of friction material . . . compensates for fading pressure of expanding springs . . . never loses torque capacity while there is a reasonable amount of friction material left to hold. The constantly increasing leverage of the toggle-which never goes over center—builds up pressure in almost direct ratio to these losses.

#### **Toggle Action Insures Smooth Engagement**

Despite its multiplied pressures and positive drive, the engagement of this clutch is gentle and clatterfree. This is due (1) to the fact that partly obsorbed by the toggles, and (2) to the fact that the rate of engenerated air currents.

gogement is slowed by the reduced speed of the taggle as it approaches center.

High thermal efficiency is assured the initial energy of the springs is by a massive plate, ribbed for faster radiation, and cooled by positively

> It's a clutch that is bound to change your ideas about clutch design, capacity and service. Write for specifications and performance dota.

- \* Engages firmly and smoothly
- \* Automatically compensates for wear of friction material
- \* Automatically compensates for diminishing friction coefficient of fabric facings
- \* Automatically compensates for fading pressure due to spring expansion and fatigue
- \* Automatically balances variable pressure of individual springs
- \* Inertia displacement of spring-equalizing ring cancels out cyclical and torsional vibration
- \* Balanced spring pressure constantly maintains parallelism of pressure plate
- \* High thermal efficiency dissipates heat rapidly
- \* Internal cooling protects springs from overheating and loss of temper
- \* Automatically compensated pressure needs no
- \* No special tools required for servicing in the





## EXPERIMEN

ON the Northwest, the Gooseneck Pullshovel Boom, is a proved unit. Remember, when listening to what you are told about equipment that there is more than the outward shape involved in securing final results without "down time" in all types of digging over long periods

Behind the Northwest Pullshovel Design are years of experience. If we were to claim the manufacture of more Pullshovels than all other manufacturers put together we wouldn't miss it by very much! The Lock Joint

orthwests.

No other Pullshovel has such a record of dorsement and experience behind it—and one important, Northwest has combined a cup of advantages with proved design to give us leader whether operating as a Pullshovel, ovel, Crane or Dragline.

You can plan to have proved, job-tested, uipment. Plan to have a Northwest!



# Barber-

NG-LEVELING FINISHER

MODEL

B-G Finisher laying 12-feet mat right up to the curb. Cut-off shees and extensions allow laying strips from 8' to 14' wide in 3" increments.

SPREADS material evenly COMPACTS to uniform density LEVELS automatically without forms

Unequaled method for properly laying a smooth, level surface for paving streets, highways, runways, parking lots, tennis courts and similar jobs.

The world's most widely used paving machine: gives superior performance in laying every type of surface - hot or cold - from clay stabilized gravel to high-type sheet asphalt.

Tamps, levels and strikes off simultaneously: automatically measures the correct amount of compacted material, produces a level surface that is maintained under rolling and traffic.

Compacts material as it is being laid: while it is hot and workable - assures a superior surface of uniform density, even when laid over an irregular subgrade.

Whether paving over new subgrade or resurfacing existing pavement, the B-G leveling principle assures a smooth, ripple-free surface without the need of forms . . . abrupt changes in subgrade cannot change the grade line of the mat.

High capacity with low maintenance: saves truck time, reduces the amount of rolling required and

see your B-G distributor

# Greene offers matchless advantages

#### ... IN DESIGN

Basically, the B-G Finisher is two separate units, the tractor unit and the screed unit. This means that the entire traction and weight are on the base shead of the material being laid, with only the ironing screed riding the new pavement. This dual-unit design also produces the exclusive B-G leveling principle that assures a smooth surface regardless of variations in the subgrade.



Scrood is adjusted at ofther side for a given met thickness, crown and for metaling provincely fald met as required. Then we the crawlers traval over the uneven authority to a higher level . . .



... leveling erms automatically till screed betrem up, but with considerably delayed action. As a result, the subgrade irregularity is minimized . . . abrupt changes in met thickness are machanically innecalible.



. . screed believe will trevel up to a ensured horizontal position, but delayed action produces an almost Imparaspithis thenes in the Malahed surface.

#### ... IN CONSTRUCTION

Precision we continue of jobs are assurance that the B-G Finisher will best meet your requirements. Special heat-treated alloy steels are made extensively to provide the durability that me making, trouble-free operation. Every part that is subject to excessive wear to designed for quick replacement when necessary . . . adding to the low maintenance requirements of the Finisher. Lock at these matchings adventages in construction:



Prediction and givers and hours, which advess provide positive power trainmission is flight energyer, sprainfing street in coursely. Retainer one push failty founded truth that is found to, up on \$75, greeds. Four applichance trained standard give to stant responses and destroy over every delease with the houston to fully anticipied, so thy according for servicings.

Covered gearbox with chain drives assembled for the crawlers

and flight conveyors on bottom of feeding happer. Genrs,



Underframe of the Finisher shows wide 10" crawler treads that give adequate traction and positive steering control. Notice the two independently operated flight conveyors on the 5-ton hopper floor that feed material the full width of the spreading screws. Operator can feed both sides evenly, feed more to one side or stop either one as required.

clutches, and drives are all assembled as one unit which is welded to the tractor frame for perfect alignment and rigidity. Rugged sub-assembly construction helps give the B-G Finisher matchiess durability.

Send for interesting folder

. . . that fully describes the operation of the B-G Finisher, and the unique principles responsible for its matchless performance.



#### BARBER-GREENE COMPANY

AURORA, ILLINOIS, U.S.A.

# RUGGED White Truck Ideal for Heavy-Line Construction

. . . Reports Sordoni Construction Co., Forty Forts, Pa.

WHITES are right for the rugged jobs of the construction industry...for specialized services where the right kind of power equipment is mighty important.

Sordoni Construction Co., of Forty Forts, Pa., have used Whites for years...know the ruggedness and dependability that have been proved on toughest assignments.

They call on White extra-dependability to do the job—whether it is setting poles on roughest kind of terrain or digging building or transmission tower footings in hard-to-get-at places.

You can have this same kind of White performance for your specialized truck requirements because Whites are engineered to your exact requirements. See your White Representative for facts about the complete White line—right for the construction industry.



This White digger truck for heavy line construction is a Model WC-20 with 196 inch wheelbase, two-speed axle, five-speed transmission. Has 4-man crew compartment, 22 ft. derrick, 12,000 pound capacity double-drum winch, and power-take-off driven earth boring machine with 15 ft. digging should have been seen to the second service of the control of the control





Builders of the complete line of White Trucks for the construction industry including White Super Power... White Diesel Power... sturdy six wheelers...and the White 3000 with the power-lift cab.

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS

#### How to get

### MORE WORK

from your "Cat" Motor Grader!

Here's the situation in a nutshell. The speed, versatility and big work capacity that have made "Caterpillar" Motor Graders an essential construction tool have also made them necessary to the defense effort. As military orders must be filled first, you may not be able to obtain prompt delivery of new machines. So it will pay you to plan now to get greater production and longer wear from your present equipment.

"Cat" Motor Graders are ruggedly built for long life. But good care on your part can lengthen that life span by thousands of extra service hours. Here's how:

- Tollow the recommended operating care in your Operator's Instruction Book. Read and reread it.
- 2 Observe the maintenance suggestions in the Operator's Instruction Book. They're down-to-earth — experience has proved them practical and effective.
- 3 Anticipate your future replacement parts needs by seeing your "Caterpillar" dealer about them now. Don't wait until wear gets beyond repair - many a part can be rebuilt if serviced in time.

You're in good hands when you work closely with your "Caterpillar" dealer. He is anxious to help you solve your problems. He has the skilled mechanics and service facilities to help you lick them and keep your equipment in shape.

CATERPILLAR TRACTOR CO. . PEORIA, ILLINOIS

You're the Doctor Preventive maintenance is

good medicine for long life. Your Operator's Instruction Baok is invaluable in the fight to conserve machine life. Follow the operation, lubrication and maintenance rec-



tion, lubrication and maintenance recommendations. When wear is evidenced in cutting edges, gears, tires or engine, see your "Caterpillar" dealer. He can help you prolong the life of your motor grader. Your motor grader is essential—don't abuse it!



Fest worker—reliable, tool This "Caterpillar" Diesel No. 12 Motor Grader is one of thousands that help construction men meet their contracts on schedule. An essential earthmoving tool, it stands up under tough going — handles easily. As a military tool, it's essential for airport construction and maintenance, road construction, the establishment of bases and scores of other jobs.

### CATERPILLAR

DIESEL ENGINES - TRACTORS - MOTOR GRADERS
EARTHMOVING EQUIPMENT

# "...ENGINE STILL IN EXCELLENT CONDITION AFTER 7,000 HOURS' OPERATION THANKS TO

### TEXACO URSA OIL X\*\*"

Taken down after 7,000 hours of rugged service in a rock quarry, this Caterpillar Diesel D-7 bulldozer engine was in excellent condition. Piston rings were all free, wear was so negligible that the crankshaft was reinstalled without any work having to be done on it. *Texaco Ursa Oil X\*\** was used exclusively in this record achievement.

Texaco Ursa Oil  $X^{\star\star}$  is detergent and dispersive; it keeps engines clean ... free from harmful carbon, gum and sludge. This, plus a high resistance to oxidation keeps rings free, ports open, valves functioning properly for better compression and combustion. Texaco Ursa Oil  $X^{\star\star}$  assures full protection for bearings ... less wear ... reduced maintenance costs and fuel consumption.

Let a Texaco Lubrication Engineer tell you about the Texaco Simplified Lubrication Plan and the economies it can bring you. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TUNE IN . . .
TEXACO STAR THEATER
starring
MILTON BERLE
on television
every Tuesday night.
See newspaper for



TEXACO

...reports Ben Malang, (right, in photo below)
General Superintendent,
Chandler Materials Company,
Tulsa, Oklahoma.

#### Three Other Texaco Cost-savers

- 1. Texaco Marfak—Tough, adhesive and cohesive, assures longer life and lower maintenance costs for chassis parts. Over 400 million pounds of Marfak have been sold!
- 2. Texaco Marfak Heavy Duty-Greater protection and longer life for wheel bearings . . . no seasonal change required.
- 3. Texaco Track Roll Lubricant-Reduces wear and lengthens life on crawler track mechanisms.

### Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

### Take to the air

#### MT. MORRIS DAM -282 feet high

Pourth highest in the eastern United States, located on the Genesses River about 50 miles south of Rechester. Designed to control the food waters of the Genesses River which have been known to reach a torrent of 24,000,000 gallons per minute—three times the vol-ume of water hurtling over the Ameri-can side of Ningara Fells.

- Drainage area intercepted—1,077 agare miles.
   Length of reservoir—17 miles.
- Height of spillway above bedrock-
- Over-all top length of dam-1,003 feet.

CONCRETE DELIVERED BY "AIR EXPRESS" on the Aerial Cableway. This is the cheap-set and fastest way to haul the materials needed to build the mammorh dam.

### and get it there

### Aerial cableway pours a million cubic yards of concrete to build Mt. Morris Dam

• This operation makes you dizzy! If you rode the aerial cableway across the Genesee River, you'd be over 500 feet above the foundations of Mt. Morris Dam, near Rochester, New York.

The main cable or "gut" as it is called, is an American 3-inch Locked Coil Track Strand 1,650 feet long suspended between two towers.

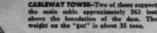
The carriage shuttles back and forth hauling 8 cubic yards of concrete to the dam every 4½ minutes. By the time the dam is finished, more than 1,000,000 cubic yards of concrete will have been poured.

All over this project, American Tiger Brand Wire Rope is doing a stupendous job. It hauls the carriage with a 3,800-foot endless rope. Because of the hard wear this cable must take, they used a 1½" 6 x 30 flattened strand rope. This is noted for its superior abrasion resistance.

The hoist cable was selected for its strength and resistance to fatigue and wear. This is a \%" 6 x 21 Tiger Brand Wire Rope made of improved plow steel.

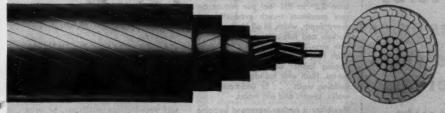
The "Button" line, and many of the shovel ropes were also Tiger Brand. Some of the Tiger Brand Rope was previously used to help build the giant Shasta Dam. Later it was brought to Mt. Morris and used on shovels and clamshells until it finally wore out. This is the kind of service that has made Tiger Brand the favorite choice of contractors in all parts of the country.







THE "OUT" or main cable—a U-S-S American 3-inch Locked Coil Track Stream! 1,650 fost long. Interiodking construction holds each wire in its proper position so that it cannot unrayed even if a wire should break.



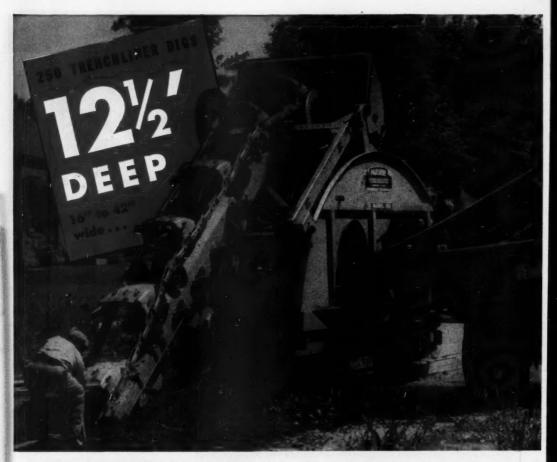
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AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL



- loads trucks
- hugs curbs
- dodges poles
- makes vertical set-ins
- undercuts sidewalks

COMBINING big work capacity with extreme flexibility, Parsons heavy-duty 250 Trenchliner digs 16" to 42" wide, up to 12½ feet deep. 30 digging feeds from 3.8" to 9¾ feet per minute assure maximum trench production at every depth, width, in all kinds of soils. Buckets and side-cutters are equipped with easy-in, easy-out "Tap-In" teeth. With full reverse of all operations, sloping ladder boom makes vertical set-ins, flush with foundations, against building walls . . or undercuts sidewalks, sewers and old mains.

Flexibility is further increased because shiftable boom cuts within 11" of side obstructions . . . digs as efficiently behind either crawler as it does in center position. Spoil conveyor shifts completely through machine by power in less than 1 min. to dodge poles and buildings without swerving from grade line . . . belt direction is instantly reversible to dump right or left. Arc of conveyor gives low-level, close-to-trench deposit . . . or reaches up to 6'-8" (8'-8" with extension section) for loading into trucks. Discharge height remains constant, regardless of digging boom position.

To check on the 250 Trenchliner's many heavy-duty mechanical features, contact your Parsons distributor, or write for bulletin. Other sizes in Parsons line include larger and smaller laddertype models, and a wheel Trenchliner.



ARSUNS Trenchliners





#### ENERGY DAY THE WHERE

Saving important seconds on every batch of concrete, tithed Flow-Line Discharge Chute pours full 12.1 cu. ft. batch in 7 seconds. Kwik-Mix 11-S also has exclusive Dandie® blade-and-bucket drum that double-mixes every batch at no increase in mixing time. It's available with side or end discharge, 2 or 4 wheels, and special tower for loading trucks. Other sizes: 3½-S to 16-S. Your Kwik-Mix distributor has complete facts.

KWIK-MIX (Kochring Subsidiary) Port Washington, Wis.



extra wide, 15"x36", fill valves and wide bin top openings reduce charging time... steep side slopes give fast, clean discharge. Standard batcher handles 34-E paver batch. For charging truck mixers, 4 material "Hi-Speed" Batcher can be furnished with 2, 3 or 4-yd. weigh happers having double clam discharge gate and collector ring. Also check the complete Johnson line of mix plants, bins, buckets and silos.

C. S. JOHNSON (Keehring Subsidiery) Chempaign, III.



With plenty of weight stability, Koehring 2½-yard 1005 holds solidly when digging into heavy rock banks. Standard baom is 26-ft. long . . . double dipper sticks, 19½ ft. For stripping, special 50-ft. shovel boom gives a maximum reach digging radius of 67 ft. As a heavy-duty crane, Koehring 1005 safely lifts up to 79½ tons . . . quickly capverts to dragline or clamshell. For more information, call your Koehring distributor or write.

KOEHRING COMPANY Milwaukee 16, Wis.





another good reason for choosing THE GARDNER-DENVER VP4 Sump Pump

You don't grease a Gardner-Denver VP4 Sump Pump. Only a single kind of lubricant is required. One filling of oil lubricates every moving part - lasts for 24 operating hours saves your greaser's time - minimizes the chances for lubrication neglect.

The VP4 solves other "Mud Puddle" problems for you, too -



Gardner-Denver VP4 Sump Pump dewatering a tunnel under construction.

It won't bury itself in a muddy sump ... can't suck grit and water into the motor or bearings. An automatic governor idles pump when suction runs dry - saves air and wear. Easy to handle . . . compact, lightweight.

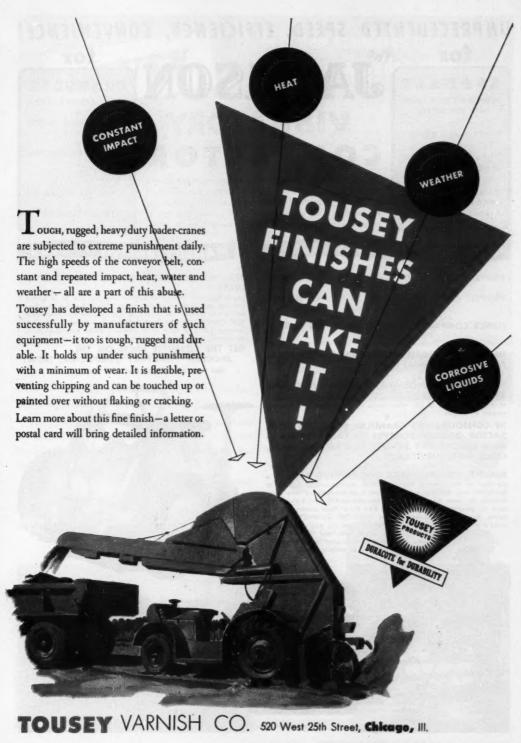
For complete specifications, write to-day for Bulletin VP4.



#### GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario



### UNPRECEDENTED SPEED, EFFICIENCY, CONVENIENCE! for for

#### ASPHALT

HIGHWAY PATCHING and WIDENING

WALKS and DRIVES

WATER-BOUND MACADAM BASES

RAILWAY STATION
PLATFORMS and
STREET CROSSINGS

### JACKSON VIBRATORY COMPACTOR

On dozens of jobs requiring the compaction of hot or cold asphalt, granular soils and crushed rock — the JACKSON VIBRATORY COMPACTOR offers tremendous opportunities for saving time and money . . . and the job is unsurpassed by equipment costing many times its price.

GRANULAR
SOIL COMPACTION
IN CONCRETE FLOOR
SUB-BASES
BRIDGE APPROACHES

CLOSE TO FOOTINGS

IN TRENCHES

#### NOTE THESE SALIENT FEATURES:

DELIVERS UP TO 4500 1 3/4-TON BLOWS PER MINUTE.

PROPELS ITSELF AS FAST AS 25 FT. PER MINUTE.

The operator merely guides it.

FIRMLY COMPACTS 15 TO 20 SQ. FT. PER MINUTE.

IN ASPHALT, CLOSELY APPROACHES THEORETICAL DENSITY OF MATERIAL USED.

IN PREPARATION OF WATER-BOUND MACADAM BASES it is easily the best means of securing maximum compaction of the stone in lifts of 10" where stone is well graded and does not exceed 4" in size.

IN CONSOLIDATING GRANULAR SOILS, THE COM-PACTOR QUICKLY ACHIEVES 95-100% OF MAXI-MUM LABORATORY DENSITY (A.A.S.H.O. T-99-38, CONE, VIBRATORY TABLE)

RUGGED, RELIABLE, ONLY ONE MOVING PART . . . the shaft of the powerful vibratory motor. Maintenance is reduced to lubrication and ordinary care. The motor is of the type we have been building for more than 27 years. It operates on 110 volt, 3-phase, 60 cycle AC generated by a Jackson 2.5 KVA Power Plant mounted on the troiler. Power Plant will operate the VIBRATORY COMPACTORS, and since it produces both single and 3-phase 110 volt AC, may also be used to operate other power bools and lighting. It is equipped with permanent magnet generator which

requires no adjustments or maintenance.

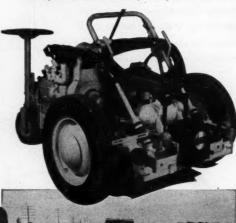
#### MANEUVERABILITY - PLUS!

With this COMPLETE, MOBILE, QUICK PICK-UP UNIT!

where frequent changes of location are required as in paving, perching operations, there is nothing that approaches the time-saving and convenience features of this complete unit. The VIBRA-TORY COMPACTOR walks itself right into the hydraulic lift. Folding-leverage action of front wheel standard makes attachment to, or detachment from ordinary auto hitch an easy one man job.

GET THE COMPLETE FACTS ON THE JACKSON VIBRATORY COMPACTOR, NOW!

See your Jackson Distributor, or drop us a line.





JACKSON VIBRATORS INC. LUDINGTON MICHIGAN



Davey Model 315 (Diesel)

 Compressed air is playing an increasingly important role in modern military operations.

The Davey Compressor Co. is currently working on sizeable defense orders and considers it a great honor to be privileged to furnish equipment to our Armed Forces.

Every Davey Compressor is equipped with Permanent Peak Efficiency lifetime valves. These never carbon or foul...do not require cleaning or replacement ...keep operating tools functioning at full capacity. There's a Davey for every compressor need!



DAVEY

DAVEY COMPRESSOR CO.



UNIVERSAL 293QS TwinDual Gravel King for big jobs requiring volume production. Three stages of crushing, two screens.

LOW TONNAGE



UNIVERSAL Model GA Portable Jaw Crushing Unit. A complete selfcontained plant for many small crushing jobs.

### MEET ANY TONNAGE REQUIREMENT WITH UNIVERSAL STANDARD PLANTS

High tonnage, low tonnage—for any type of aggregate from riprap to aglime, or road ballast to washed sand—you can depend on Universal to meet your production requirements.

The wide range of cost-cutting, field-proved Universal standard plants permits selection of the right equipment without special built-to-order expense. Whether your jobs are big, medium, or small, Universal builds the plant you want for low cost production. Ask your Universal distributor or write for illustrated literature.

The most complete line of Portable, Semi-Portable, and Stationary Crushing, Screening, Loading and Washing Equipment.

- Rock Plants
- Gravel Plants
- Aglime Plants
- Crushing Plants
- Coal Plants
- · Screening Plants
- Washing Plants
- Loading Plants

UNIVERSAL ENGINEERING CORPORATION Division of PETTIBONE MULLIKEN CORPORATION

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# MALL TOOLS GET THE JOB DONE ON SCHEDULE

make quick work of any job.

CHAIN SAWS

DRILLS

CONCRETE

CIRCULAR

GRINDERS

Meet contract specifications on time. When you use Mall Tools you are sure of uninterrupted service on the job. No costly breakdowns to hold up other work... for Mall Tools perform under any conditions.

Mall Chain Saws are a good example. They speed cutting jobs ten times and more over hand sawing methods... Slice through wet or dry timber fast and easy. There are ten electric, gasoline engine and pneumatic models to choose from—each with the power and zip to

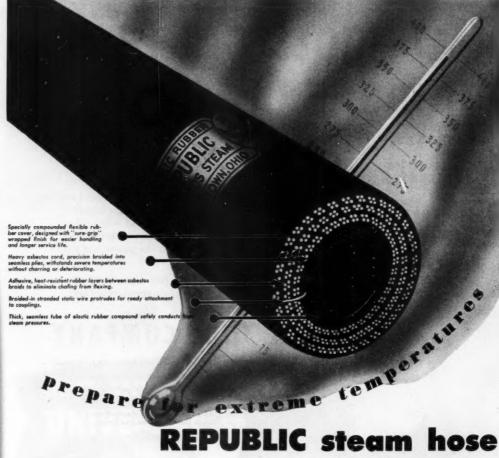
See your local Mall dealer for a free demonstration of Mall Tools. Prove to yourself their speed, economy and dependability.

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FACTORY SALES AND SERVICE BRANCHES IN 32 PRINCIPAL CITIES

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#### REPUBLIC steam hose

• Republic's braided Asbestos Steam Hose carries high pressure steam with safety and economy.

It's made to handle pressure up to 200 pounds without charring and for use on all jobs where continuous service and dependability are important to success.

Republic Asbestos Steam Hose has seamless rubber steam channels, surrounded by multiple plies of precision-braided asbestos cord.

Thick layers of specially compounded insulating rubber protect each ply against internal

Republic Asbestos Steam Hose is built with tough, flexible outside covers that resist abrasion. The special "sure-grip" cover design makes the hose easy to handle; less dangerous underfoot.

Contact your local Republic Distributor or write direct for more information about this super-duty steam carrier.

Asbestos Steam Hose is available in standard Aspestos Steam flose is available in standard fifty-foot lengths, ready to go to work on your toughest job. And, don't forget the many other products and services available at Republic Rubber, for nearly a half century, the specialist in the field of industrial rubber.



INDUSTRIAL RUBBER PRODUCTS BY

REPUBLIC RUBBER DIVISION

YOUNGSTOWN, OHIO



### Herman Nelson <u>Safe</u> Portable Heaters add weeks of "working weather"!

BAD weather ahead? That's the forecast! But cold, rain or snow won't put your construction schedule in low gear . . . if Herman Nelson heaters are on the job. Engineered for rugged, heavy duty service these Herman Nelson mobile heating units keep jobs moving through winter's coldest months. Quick-Clean-Safe beat is delivered where you want it . . . when you need it . . . providing efficient working temperatures for men, materials and machinery.

Experienced construction men know there's a big plus in putting Herman Nelson units on their jobs. Greater heat producing capacity—up to 450,000 BTU—also greater versatility and efficiency saves the original equipment cost again and again. They're safe, too! Exclusive "sealed flame" and forced air ventilation features of Herman Nelson units eliminate carbon monoxide, fumes and fire hazards.

For heat on your job—heat that is quick, clean, safe and economical—let us show you

why smart construction people are buying Herman Nelson Portable Heaters as a money-making investment. For full information write to Dept. CM-10.



capacity 280,000-450,000 BTU/br.
Completely automatic, including temperature control.
Fresh air delivery 2,000-2,350 cfm.
Electric motor powered.

Electric motor powered.

Other models available—with gas or electric power-and capacities from 125,000 to 385,000 BTU/br.



#### HERMAN NELSON

Division of AMERICAN AIR FILTER COMPANY, INC.

MOLINE, ILLINOIS

### L Si

### Simplified





### construction and maintenance tool

Set it on your desk, plug it into a socket, connect antenna, and you're in business with instant communication to all your mobile units.

... and a similar Uni-Channel dispatcher can be mounted in any mobile unit—matched pairs of "Handie-Talkies"\* thrown into the action for the "foot soldiers" of Industry and Civil Defense.

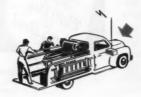


KEEPS ALL YOUR MEN IN CONSTANT CONTACT ... Simplified Motorola Systems offer you top performance of the marvelous Sensicon Circuit with Permakay for permanent selectivity and 7 other exclusive features that keep Motorola out in front as a better buy and sounder investment!

You need 2-way Radio for better communication. You need Motorola for more Reliability!

\*Trade Mark of Motorola







Motorola

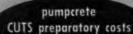
Over 20 Years Specialists in Mobile RADIO

MOTOROLA INC: COMMUNICATIONS AND ELECTRONICS DIVISION
4545 AUGUSTA BOULEVARD, CHICAGO 51, ILLINOIS
ROGERS MAJESTIC ELECTRONICS, LID., TORONTO, CANADA

# You'll profit from these "cutting remarks"

... on how Rex Pumpcrete®
and pipe line flexibility cut concrete
placement costs on buildings
of all types.

#### pumpcrete CUTS direct labor cost



Pumperate and pipe line Residitive eliminate need for many access structures such as road building and maintenance... towers and scaffolding, etc.



Delivers concrete in a steady flow. Often eliminates avertime caused by crews having to wait to avoid interfering with placement operations.

Just Look at these examples!

#### pumpcrete CUTS non-productive moving time

No need to move mixing equipment from place to place. Spall Pumperete in the one best



Here Pumperete is being used to place all concrete on a four-story steam generating plant. On this job there are many big pours in a small area. An important advantage of the Pumperete is its steady pumping which permits small crews to handle large volumes with little dead time. Better scheduling of all operations on the job is possible. Overall efficiency is greatly increased.

On this job the Pumpcrete, being charged by a Rex Hi-Discharge Moto-Mixer, pours the flooring of a large apartment building. An important advantage here was the fact the steel setting and forming crews were able to erect the tall column forms shown without interference from the concreting crews pouring the slab. Columns were poured when second floor was constructed.



Nine stories high...160 feet up! That's how high the Rex Pumpcrete lifted the concrete on this building job. Pumpcrete is ideal for pouring floors on buildings several stories high. As one floor is completed, the pipe line is just extended on the job. Expensive preparatory tower work, buggies and buggy runs and costly moving of such equipmentare eliminated.



Ask your local Rex Distributor to give you the "cutting details" of concrete by pipe line. Or, if you prefer, write to Chain Belt Company, 1664 W. Bruce Street, Milwaukse 4, Wis.

CONSTRUCTION MACHINERY . . .

PUMPCRETE IS THE REGISTERED TRADE-MARK OF CHAIN BELT COMPANY

### U-S-S Research Division Develops

### THE STEEL Look at these test results:

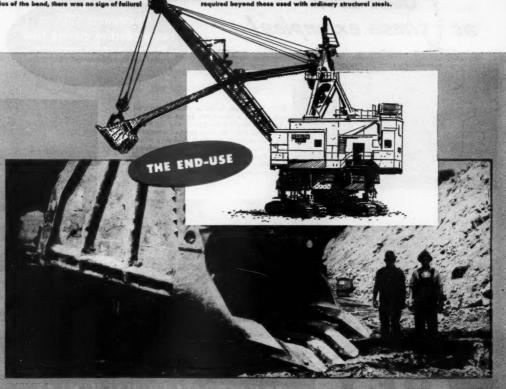






90° BEND AT 98 BELOW! This sample, flamecut from 1" CARILLOY T-1 plate, was chilled to —98°F., and then ben! to a full 90° angle. Even though the raw, flame-cut dage made up the outer radius of the bend, there was no sign of failure!

100% WELD STRENGTH—Tensile tests on T-Steel specimens like these were made to determine the strength of the welds. These welds develop the full strength of the parent metal. Note that breaks occur outside the heat-affected zone. No special pre-heating or post-heating treatments are resulted heavend these used with entirent strength of the property of the property



### Remarkable New Structural Steel

#### TO MEET SEVERE SERVICE REQUIREMENTS

The answers turned up by many U·S·S research projects have immediate practical use. They enable us to produce better steels and solve customers' baffling problems.

Typical was the recent development of CARILLOY T-1 steel—one of the most interesting projects ever undertaken by the United States Steel Research Division.

The actual problem was defined by manufacturers of heavy-duty construction equipment. Superstrong steels were needed; at the same time they had to withstand tremendous shock loads, abrasion and very low temperatures. Few of the alloy steels then known could be welded in the field because of the required pre-heating and post-heating. For this reason, the cost of down-time for—say a 35 cu. yd. stripping shovel—is enormous. When an important part breaks down, the whole operation grinds to a halt. The entire tipple and pit crew—together with all their expensive equipment—may be idle for days waiting for a part to be repaired in the shop.

To meet this situation, we set out to create one of the most unusual and promising steels ever developed . . . a steel so strong that, per pound of tensile strength, it is the *cheapest* weldable steel that money can buy.

Metallurgical and Research Divisions collaborated on this job. The Metallurgical Division defined accurately the many requirements—strength, weldability, toughness, forming characteristics.

Then the Research Division took over. With a background of knowledge of many alloying materials and their effect on the end product, dozens of laboratory heats were made and tested with great care. The final composition gradually evolved: a steel alloyed with manganese, nickel, chromium, molybdenum, vanadium and boron. A tempered martensitic microstructure was obtained through heat treatment.

Since the main emphasis was on toughness under all conditions, Charpy (keyhole) impact tests were carried out over a wide range of temperatures. Extensive welding, bending, tensile and compression tests were also made. Many fabricating techniques were tried to be sure the steel could be easily worked.

Now the results are in; and they look good. The transition temperature of Carillov T-1 is so low that it will remain ductile at any climatic temperature on earth—even after welding or gas-cutting. Welds do not require special pre-heating or postheating, yet they develop the full strength of the base metal. With the raw, flame-cut edge outermost, a 1" x 1" specimen was chilled to —98°F., then bent to a full 90° without a sign of cracking. This despite the fact that ¼" to 2" plates of Carillov T-1 have a minimum tensile strength of 115,000 psi.

CARILLOY T-1 is now being used in the dipper sticks and scoops of the biggest power shovels in the world. Preliminary reports show that it should far outlast conventional steel. Repairs can be made easily in the field.

The great majority of your steel problems can be cleared up by our service metallurgists with their rich background of experience. When existing data are inadequate it is good to know that a seasoned group of steel research men is ready to dig out the answers.

United States Steel Company has large research and development laboratories in its mills and in Pittsburgh. Long-range research is carried out at Kearny, N. J. Also, U. S. Steel Company sponsors scientific studies in many universities and research institutions. The fruits of this research can be found in the low cost and ever-increasing utility of our steel products.

UNITED STATES STEEL COMPANY, PITTSBURGH

COLUMBIA STEEL COMPANY, SAN FRANCISCO • TENNESSEE COAL, IRON & RAILROAD COMPANY, FAIRFIELD, ALA.

UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST • UNITED STATES STEEL EXPORT COMPANY, NEW YORK



ELECTRIC PURNACE OF OPEN HEARTH . COMPLETE PRODUCTION FACILITIES IN ENICARD AND PITTSBURGH

-1350

UNITED STATES STEEL



Fastens steel or wood to concrete or steel in seconds!

NEW CARTRIDGE-POWERED

MODEL 450

### REMINGTON STUD DRIVER

Sets fastening studs up to 100 times faster than conventional methods...needs no outside power source

You can speed construction and maintenance fastening jobs and cut costs with the amazing new Remington Stud Driver. This simple tool attaches steel or wood pieces and fittings to concrete or steel . . . easily sets as high as 5 fastening studs in a minute. No outside power source or other equipment needed. It's compact, rugged, safe. Test-proved to be the world's finest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., America's oldest and foremost sporting arms manufacturer. For detailed information and the name of your nearest distributor, fill out and mail the coupon below. There may be slight initial delays on delivery until production and distribution catch up with demand.



How to operate the Model 450 Remington Stud Driver



#### Speeds all these jobs . . . and many more

5. Attaching conduit and panel boxes to steel and masonry.

6. Anchoring light machinery to concrete pads. 7. Erection of signs, awnings and venetion blinds on steel or masonry.

8. Hanging radiator housings to concrete or brick,

"If It's Remington-It's Right!"



#### LOOK AT THESE EXCEPTIONAL FEATURES

COMPACT AND PORTABLE - Weighs only 51/2 pounds, ideal for scaffold, ladder, overhead work, inaccessible places. Comfortable to use in any position.

speed...One man can set up to 5 studs per minute, as much as 100 times faster than other methods. Sets stud at whatever depth is required up to 234 inches, depending on material.

ELIMINATES INVESTMENT IN OUTSIDE POWER —Self-powered. Especially useful in isolated places.

TRIPLE SAFE-Plainly visible red dot indicator shows when it's cocked; safety must be depressed before and during squeezing of main trigand during squeezing of main trig-ger; permanently attached safety shield must be compressed against work before Stud Driver will operate. Trigger can't be acciden tally tripped. Slight recoil. Low noise level.

wide variety of stude are available for every fastening job. Genuine Remington studs are trad marked for user's protection. Pull-out resistance as high as two tons in good concrete, depending on studused. Cartridges are available in 5 power loads covering practically all fastening needs

UNIQUE, FAST ASSEMBLY OF STUD AND CARTRIDGE — Tough plastic heel cap permits lightning assembly of any cartridge with any stud, identifies power load, protects head and thread of stud during driving.

PRICE for Model 450 Remington Stud Driver complete in rugged steel carrying case—only \$119.50

#### MAIL THIS COUPON TODAY FOR FURTHER INFORMATION

Remington Arms Con Industrial Tool Divis	ion
	ridgeport 2, Connecticut obtaining detailed information on the in Stud Driver.
Name	
Firm	
Position	
Address	
City	State



### 3 ADVANTAGES IN BARNES

"33.000 For 1" Pumps

THAT CAN AVOID HEADACHES

NO SOFT SPOTS TO WEAR ON WATER SEAL

The two wearing parts on the Barnes Super Seal are hardened steel. You have steel on steel. There are no soft spots to wear. Since the grease seal is automatically lubricated, pump can be run dry without damage to

NO RE-CIRCULATING CHAM-BER TO CLOG

Barnes "33,000 for 1" Pumps do not have either a re-circulating chamber or port. Cement-water, stones, twigs, leaves and such will not clog the pump.

NO COSTLY REPAIRS TO KEEP PUMP VOLUME UP

P PUMP VOLUME UP

Simple impeller adjustment takes up wear of impeller. It is simple and inexpensive to restore pump to its original capacity and performance of high vacuum readings of 25" of mercury and 27 to 28 foot-lift of water.



COMPLETE LINE FROM 4,000 TO 90,000 G.P.H.
CHOICE OF ELECTRIC,
DIESEL, GASOLINE, OR
PULLEY DRIVE.



BUY THE BEST . . . BUY BARNES

# Puts itself u

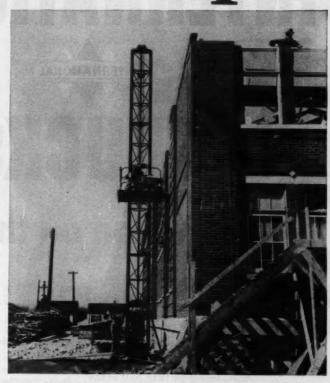


Nobody climbs anything, to erect the tower of the American Portable Material Elevator. The operator just moves a lever on his hoist, and the tower swings up into working position.

If you are still struggling with old-fashioned wooden scaffolds. think about this: the American Portable Material Elevator can be taken down, moved and set up again in much less than one day. Standard height is 47 feet-10' extensions take it to 97 feet. Big 6' x 6' platform carries two wheelbarrows or concrete buggies; self-dumping concrete bucket carries 1/2 yard. Platform speed is 90 feet per minute.

For full information see your American Hoist distributor.





Modernize ... economize ... with

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AMERICAN PORTABLE MATERIAL ELEVATOR

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Standard of the Highway
INTERNATIONAL



TRUCKS

One million on the road

A million trucks is an impressive number of trucks. It is even more so when you consider this fact: it represents more than half of the Internationals built in the past 44 years.

What proof could be stronger testimony that International Trucks are engineered to give you lower operating and maintenance costs over a longer truck life?

See your nearest International Truck Dealer or Branch for all the facts—join the next million truck users who will have the greatest truck value on the road.

International Harvester Builds McCormick Form Equipment and Formall Tractors...Motor Trucks... Industrial Power...Refrigerators and Franzers



INTERNATIONAL HARVESTER COMPANY + CHICAGO

INTERNATIONAL



TRUCKS

"Standard of the Highway

# IS YOUR SHOVEL OPERATOR "POOPED" AT QUITTING TIME?

EASY-TO-RUN BAY CITY HELPS OPERATORS DO A BIGGER, BETTER DAY'S WORK

BAY CITY Shovels really cut operator fatigue with mechanical improvements that simplify operation and give smooth performance. The well-raised seat is comfortable. The cab design permits an unobstructed view for the operator.

All controls are conveniently arranged within easy reach. Booster clutches permit fingertip control of front drum and hoist clutches with swift, positive action.

The electric power dipper trip dumps quickly and easily. Anti-friction bearings and

helical-cut gears insure quiet operation.

With a BAY CITY Shovel on the job,
your operator will do a bigger and better
day's work, too. For complete information
see your nearest BAY CITY
dealer or write us today.
BAY CITY SHOVELS, INC.,
BAY CITY, MICHIGAN



Diesel powered 1 yard Model 59 working for D. J. Carten Sand & Gravel Co. of Stratford, Conn.

#### CHECK LIST

Long, Wide Crawlers
Alloy Cast Bases
Tandem Drums
Power Dipper Trip
High Line Speeds
Wide Vision Cabs

in-Connected Boom

POWER BOOSTER CLUTCHES — The wide, heavyduty hoist and front drum clutches are set with engine power by a mechanical type booster clutch that gives easy operation, simple adjustment and accurate load control. A short, easy throw of the operating hand lever sets the main clutches to permit fingertip control with fast, positive action.





**BAY CITY** 



SHOVELS . CRANES . HOES . DRAGLINES . CLAMSHELLS

# Some state of the state of the

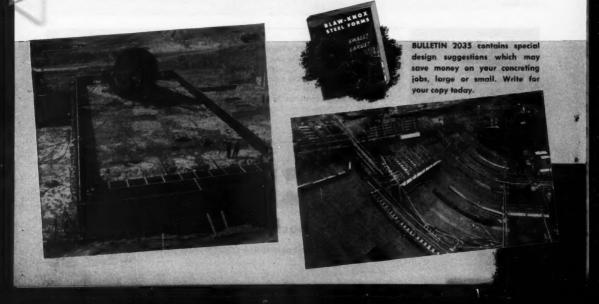
WHENEVER there's a river to be dammed, it's a good bet that Blaw-Knox Forms and forming methods will be used. 2 out of every 3 big dams built since 1945 have been constructed with Blaw-Knox Steel Forms!

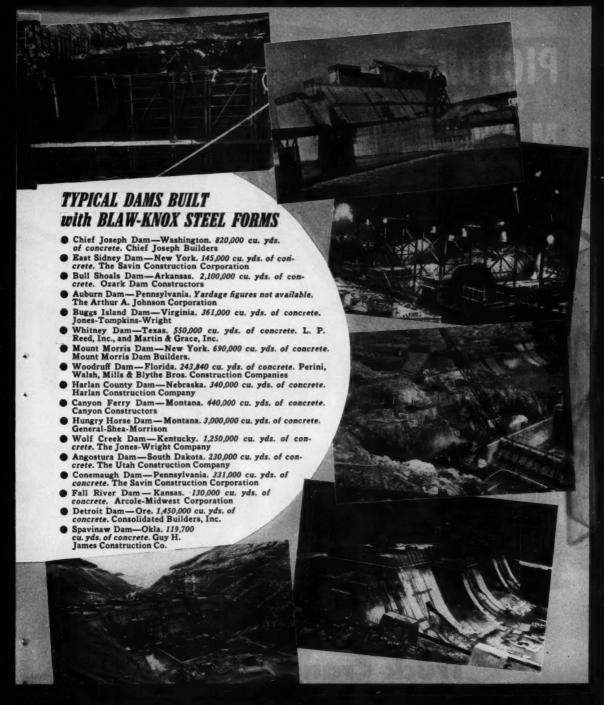
One of the many reasons for this acceptance is the Blaw-Knox engineering know-how which is available, without obligation, from the blue-print stage to the final pour. Blaw-Knox engineers will study your job, recommend the best form design. They will help you simplify your forming methods and can often save money by

eliminating unnecessary operations or materials.

Blaw-Knox engineers are always on hand for consultation to help you solve unusual or costly concreting problems. Their knowledge of practical forming methods is the result of over 40 years Blaw-Knox experience in building steel forms for concrete jobs of all kinds.

... Whether it's placing concrete for big dams or small sewers, simple or tough projects ... you'll get the job done faster and at lower cost when you use the Blaw-Knox job-proved Steel Form System. Write for details today.





# BLAW-KNOX

Division of Blaw-Knox Company • Farmers Bank Bldg., Pittsburgh 22, Pa.

New York · Chicago · Philadelphia · Birmingham · Washington · San Francisco

# PICTURE OF THE MONTH

CONSTRUCTION METHODS AND EQUIPMENT



## Truck Crane Becomes Movie Star

ITS NAME may never appear in lights on a theater marquee, but this Lorain SP254 is in a starring role for a new movie as it erects big outdoor sets for Universal Pictures, Inc., at Universal City, Calif.—Thew Shovel Co. photo.



# Better for structural work

You need less mixing water for a given alump when you use Atlas Duraplastic air-entraining portland cement. You'll find the mix is more plastic, more cohesive, more uniform. And that means easy placement . . . and improved surface appearance on large or small structural jobs.

#### Makes more durable concrete

When Duraplastic is used for structural concrete, billions of tiny air bubbles, entrained in the concrete mix, minimize water gain and segregation. This results in a more durable concrete, fortified against the effects of freezing-thawing weather. (Right, Screeding Duraplastic concrete, Lees-Cochrane Corporation Building, Glasgow, Va. Architect: The Ballinger Co., Philadelphia; Contractor: Daniel Construction Co., Greenville, S. C.)



#### YET DURAPLASTIC\* COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

\*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

ATLAS®

## **DURAPLASTIC**

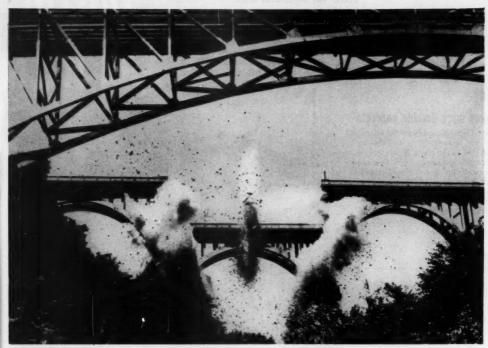
AIR-ENTRAINING PORTLAND CEMENT

CM-D-128

Makes Better Concrete at No Extra Cost

"THE THEATRE GUILD ON THE AIR" ... Sponsored by U.S. Steel Subsidiaries - Sunday Evenings - NBC Network

#### Construction News in Pictures...

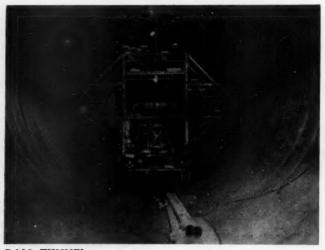


BLASTED BRIDGE—In shadow of its steel replacement, old concrete erch bridge between Akron and Cuyahoga Falls, Ohio, is demolished by blasting spans loose one at a time. Deck was cut through with pavement breakers, arches were center-

and end-drilled two-thirds of the way through, holes were loaded with DuPont 40% gelatin dynamite, and blast set off to drop 1,500-ton span 200 ft into revine. Job is handled by Cleveland's Cuyahoga Wrecking Co.—Wide World.



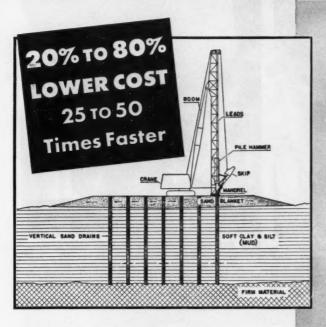
HELLISH JOB—At site of proposed Hells Canyon Dam in Snake River Gorge, Idaho, drill barge fights swift water while exploratory holes are sunk. L. L. Jeffries Co., Richmond, Calif., has contract.



DAM TUNNEL—In Lucky Peak Dam's 1,119-ft outlet tunnel, jumbo carrying four GE arc welders joins 40-ft lengths of 23-ft dia steel pipe for liner. To eliminate all but inside field welding, butt-strap backup plate is shop welded to ends of each section, one-half strap to each side. General contractor for Corps of Engineers flood control project on Idaho's Boise River is joint venture headed by Morrison-Knudsen Co.

(Continued on page 44)

# Settling marshy ground...

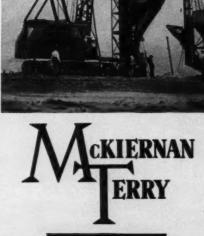


SAND DRAINS... the new development for dehydrating marshy ground has provided permanent soil stabilization on important jobs far quicker and at much less cost than any other method.

This method makes use of readily available sand and borrow, and is successful for depths even up to 100 feet and more.

McKiernan-Terry equipment has been used for driving hundreds of thousands of Sand Drains for highways, airports and earth dam foundations. This equipment has been specially designed for the purpose and has been fully proven in service.

McKiernan-Terry Sand Drain equipment is available to contractors all over the country. Write for bulletin describing the operation of this equipment in marsh and swamp reclamation work, and for advice on equipment for your special needs.



SAND DRAINS

Write for Bulletin 61 on Sand Drains

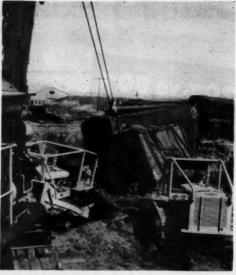
MW 214

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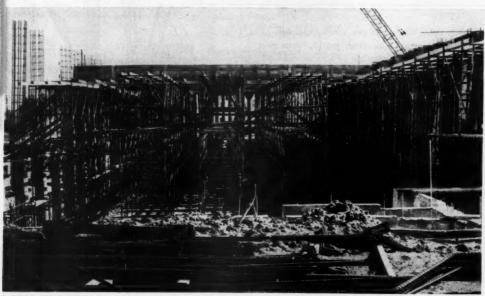
#### Construction News in Pictures... Continued



BRICKLAYERS' DELIGHT—Serpentine well 8 ft high, 7,100 ft long and one brick thick under construction along Ford Motor Company's test track, Dearborn, Mich. Purpose is to conceal testing of new cars and trucks. Design of reverse curves of 6-ft radius was selected for beauty, economy. Wall has concrete footing, 2 ft wide, 3½ ft deep—requires no bracing,—Ford photo



BIG PULL— Two Caterpillar D8 tractors owned by Hunter & Collman, Klamath Falls, Ore., logging contractors, give an essist to a rail crane in moving a splintered boxcar after a wreck on the Southern Pacific Railway near Merrill, Ore. Railroad requested help of big crawlers and their winches to bring derailed cars back to trackside.—Caterpillar photo



FORM SUPPORTS—More than 400 Safway Steel Scaffold frames are here being used to support forms for the second-floor slab of concrete over a swimming pool. The scaffolding bridged an area 120 ft long and 47 ft wide, supporting a dead weight of 490 tons of concrete after pouring. Deflection of the completed

slab is said to be one-half in. The steel scaffolding lent itself readily to positioning on the sloping contour of the swimming pool. This idea was adopted successfully in the construction of the Frank E. Cody High School, Detroit by the F. H. Taylor Construction Co. Use of scaffold frames also speeded building construction.

MORE JOBS,
MORE PROFITS
when you own a

LIMA famoster

he LIMA PAYMASTER is a ¾ cu. yd. convertible shovel, crane, dragline and pullshovel designed and built for faster, smoother performance and more versatile application. Regardless of the type of work to be done you can be sure of maximum power, big output and low operating costs.

Ease of convertibility is one of the many "PAYMASTER" features that will enable you to handle a greater volume of work with more profit. Specifications and working ranges are given in bulletin #034-G. Write for a copy.

BALDWIN-LIMA-HAMILTON CORPORATION
LIMA-HAMILTON DIVISION
LIMA, OHIO



SALES AGENTS IN PRINCIPAL CITIES OF THE WORLD

BALDWIN - LIMA - HAMILTON

October 1951 - CONSTRUCTION Methods and Equipment - Page 45



# We Must Face the Highway Crisis Now —there is only one <u>real</u> cure!

One of the greatest home-front threats to the welfare of every American is the congestion on our highways today.

It is not only a menace that costs thousands of lives in needless accidents and millions of dollars in wasted time every year—it is a peril to national security!

Without motor transportation the nation would stagnate. It has become the lifeblood of America's economy. The highways are its arteries—and they are hardening fast!

#### Remember these facts

Motor transport now carries 80% of all interstate passenger traffic — takes more than 50% of all workers to their jobs.

It speeds 90% of all foods to market—hauls 75% of all general freight.

It is the swift plant-to-plant conveyor of raw materials, parts and subassemblies that keeps America's massproduction lines going—that makes America's unprecedented prosperity possible.

#### Roads are the bottleneck

To keep America moving today requires the daily use of almost FIFTY MILLION motor cars, trucks and buses—more motor vehicles than all the rest of the world possesses!

Yet this vital transport system is now jam-packed into an obsolete highway system—most of it designed prewar to comfortably accommodate less than half today's vehicular mileage! And motor registrations have been soaring since the war at the rate of 3.7 million per year.

#### We should have action NOW!

We cannot cut this Gordian knot by restrictive laws. The crux of the problem is not the number of cars or the size of trucks—it is too few modern roads!

To keep our nation mobile, we must start building a new national highway system now, designed for modern traffic needs and speeds.

Such a modern road system is essential to our prosperity and vital to our defense in this atomic age. And we have the world's most efficient road-building industry equipped to construct it in less time than ever possible before.

The time has come when we must do something about better roads besides talk. The demand for action must come from everyone who uses the highways—and that's just about everybody.

Chairman of the Board
THE GOODYEAR TIRE & RUBBER COMPANY, INC.

GOOD YEAR

## **Details Make the Job Click**

OCCASIONALLY, construction technique advances in surges. A radically new piece of equipment, or an entirely new concept of an operation will change the procedure to which they apply. But largely, construction advances through improvement in details, by better application of equipment and by intelligent planning and management. And these advances can take place on jobs both large and small.

Sometimes our readers tell us that we pay too much attention to big projects, not enough to the routine every day jobs that make up the bulk of our construction volume. We don't agree with such contentions.

Our sole editorial objective is to present ingenious and profitable methods of construction, to spread new ideas, to tell about new equipment and better applications of all equipment, and to help you maintain, operate and service your equipment to get everything out of it that the manufacturer has built into it.

Construction ingenuity and good ideas are not limited to size of job or type of work. Often a smart contractor on a small operation comes up with some splendid ideas. But we seem to find more advances on some of the larger jobs.

The best example we have seen in many a day of management paying attention to details—and the job is paying off as a result—is the present earthmoving operation at Garrison Dam. As portrayed elsewhere in this issue, Ben Williams and his hustling organization of the PK-MK combine apply ingenuity and clever ideas to every phase of this 30-million yd job.

You'll find all these ideas amplified in the article, but here are a few we're repeating here for examples: (1) Colored lights on the loaders, to designate the class of material being excavated, with this same color design-

nation being carried out by flags on the haulage units and flags on the fill section. (2) Three pairs of vertical rods welded to the loader frame so the wagon driver can properly line up his rig for correct loading. (3) Butane-burning engines on all haul units; they cut fuel cost in half. (4) Pump-powered nozzles on 10,000-gal water wagons that throw a spray 80 ft wide. (5) Railroad-type spout on the water storage tank that fills the sprinklers in 21/2 min, plus a foolproof pump indicator on the tank. (6) Special tamping rollers with shale-chopping teeth. (7) Well-maintained separate haul road exclusively for the big Euclids, over which they can roll fast without interference and danger to other traffic. (8) Manuallyoperated traffic lights at haul road intersections. (9) Pickups and cars assigned to key personnel painted distinctive striped colors, with corresponding colored lights at night, for easy identification. (10) All ground personnel working around borrow pits or on the fill wear red caps by day, reflecting tape belts at night for safety.

Those are operating ideas. Now for a few equipment service and maintenance details: (11) Line up all haulage units in a row at meal times and end of shifts for quick refueling and watering. (12) Special gantry tower water wagon for filling top tanks in a hurry. (13) Central service station for greasing and oiling haulage units once each shift, with colored light indicators for safety. (14) Well-equipped grease and fuel trucks for servicing other equipment in the field. (15) Special 4-wheel dolly for moving wagons with snapped axles back to the main shop. (16) Weekly inspection and check of all equipment in the field. (17) Monthly check, much more complete, of every equipment item at the main shop.

(18) Well-equipped and well-manned main shop where units can be overhauled, and where spare engines and sub-assemblies are built up ready for quick change. (19) Tire-service truck that makes tire changes in the field quick and easy. (20) Tire-repair shop where damage and worn tires are salvaged and rebuilt.

There, you have 20 sound, but relatively simple, ideas that can be applied to any large earthmoving job. But ingenuity and money-making ideas apply to both large and small jobs. Most of the details mentioned above are just as applicable to small jobs as to Garrison Dam.

You can put those line-up rods on a single loader just as well as on five loaders. You can equip your two or three pit and dump men with red caps and reflecting belts just as easily as Ben Williams does his two-score ground men.

You can raise the nozzles on your lone sprinkler and operate them with pump pressure for more efficient sprinkling. You don't need a couple hundred equipment units to check them carefully once a week and more thoroughly once a month.

So we're going to continue to follow our editorial objective and report all the new techniques that further construction progress, whether they spring from large or small jobs. You big operators can learn from each other; you smaller contractors can take many a cue from the big jobs.

No construction man, large or small, has all the answers. But smart operation, attention to details, and an ever-burning desire to work better, faster and more efficiently, coupled with a constant exchange of ideas, is what makes for advance in construction procedure.





## PAVING THE PIKE...

### **New Jersey Toll Road Is Rushed to Completion**

By HENRY T. PEREZ, Senior Associate Editor

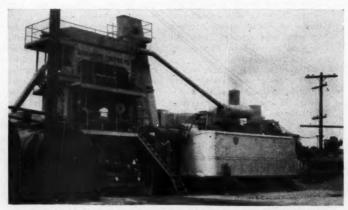
TAKE a 3,500,000-sq yd blacktop paving project, squeeze it into one construction season, and you've a whale of a rush job. But that's just what four paving contractors are finishing on the New Jersey Turnpike: they started this Spring and expect to have all but about 5% of the 118-mi dual highway ready for traffic in November. Paving at this pace is quite a feat because the contracts call for two lifts of graded compacted gravel or stone subbase, two layers of penetration macadam base and three layers of asphaltic concrete surfacing. It makes an 181/2-in. total depth on two 24-ft roadways.

Methods and equipment of the four contractors are pretty much standard. Typical are those of S. J. Groves & Sons Co., Minneapolis, on their 20½-mi stretch at the south end of the pike where it ties in with the new Delaware Memorial Bridge (CM&E, Feb. 1951, page 67). On this 605,000-sq yd section

calling for 151,000 tons of hot mix, two 4,000-lb batch plants and two finishing machines produce and place an average 2,500 tons of asphaltic concrete in a 10-hr day. This, of course, is the payoff so far

as completion of the pavement is concerned. But there's many a headache preceding it.

First, subgrade must be finegraded and compacted to 95% of maximum density. This requires



ASPHALTIC CONCRETE SETUP at Swedesboro, near center of S. J. Groves & Sons Co.'s 20½-mi south-end job, is neat and efficient. It pours out average 2,500 tons each 10-hr day for Alexander Construction Co., subcontractor for hot-mix paving. Two Madsen automatic





SPREADER BOX on front of tractor distributes gravel subbase or stone for penetration macadam, as shown here. This 18½-ton semitrailer load was evenly spread to 4½ in. in only 45 sec.



PADDLE WHEEL slowed by scale-arm friction brake serves dual purpose as aggregate from reclaiming belt falls to next flight. It mixes three or four materials fed to belt at once, lessens breakage.

removal by scrapers of an average 10-in. layer 27 ft wide on each side of the median strip, to box out for the 6½-in. gravel subbase layer. The latter is put down in one 3½- and one 3-in. lift, each compacted to 95% by rubber-tired and 3-wheel rollers.

Fortunately, there are pits of good, well-graded gravel along the job, and the bank-run material is handled by shovels and trucks on comparatively short hauls. (In contrast, all stone for macadam and blacktop must be trucked 50 mi, sand 30 mi.)

To spread gravel fast and accurately, Groves has rigged up a large hopper on the dozer frame of a D8 tractor (photo). It is patterned after a somewhat similar unit described in CM&E, Mar. 1951, page 46. Pushing a dump truck, the dozer-hopper spreads and

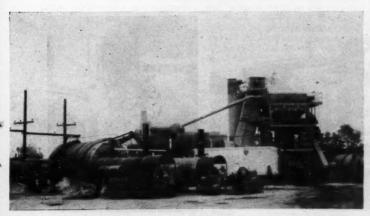
screeds 10 tons of 2-in.-minus material in less than 30 sec.

Two penetration macadam layers follow; one 4½ in., one 3. Like the gravel below, these are placed one lane at a time. Graded 3-in.-minus crushed stone for the first lift is spread by the hopper tractor that handles gravel, or by Adnun pavers with altered screeds. Adnuns alone spread 2-in. stone for the upper layer, as tractor travel on top of the first lift is banned.

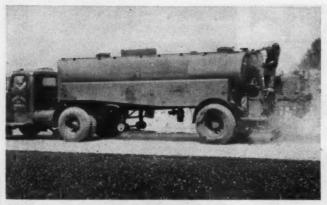
Rolled stone for each layer is penetrated with 1.75 gal per sq yd of 100-120 asphalt at 325 deg, and choked with ¾-in. stone. This is distributed by truck-backed chip spreader at 35 lb per yd. It is broomed and rolled to a tolerance of ¼ in. in 10 ft.

A tack coat of 0.5 gal of asphalt and 15 lb of %-in. chips per sq yd prepares the macadam for the plant-mix topping. The latter is put down in two 1½-in. leveling courses and one 1½-in. surface course for a total 4½-in. depth. Finished pavement width for each roadway is 24 ft.

Groves sublet the asphaltic concrete paving to Alexander Construction Co., Minneapolis, which has set up an efficient hot-mix installation at about the midpoint of the job. Main units are two Madsen asphalt plants, each rated at 120 tons per hr, that handle better than



batch plants are independent of each other but have common aggregate feed from joint stockpile in center behind them. Trailers house electrical switch gear, also carry miscellaneous equipment and parts when the semi-portable plants are moved.



DISTRIBUTING TRUCK shoots first lift of penetration macadem, here at toll booth area near end of turnpike. Stone is penetrated as soon as possible after rolling, to protect the surface and give quicker-drying area that can be worked on sooner after rains.

a 4,000-lb batch. They are fitted with all-electric drive, air-operated gates and push-button controls.

Another feature: each drier is heated by four Hopkins Volcanic oil burners operating on low- pressure air, rather than by the usual single burner with steam injection. The multiple burner installation gives more accurate temperature control over a wider range, reaches maximum heat faster and uses less fuel oil. It requires only 15 hp for air blowers and fuel pump, as against 65 hp with steam.

The construction company itself has added a simple but time-saving procedure. Extra sets of plant screens already mounted in their frames are kept on hand for quick

installation when changes are necessary. This cuts replacement time to only 20 min as against the 3 hr it formerly took to install new screens in the frames over the hot bins.

Alexander's plant layout is in the form of a symmetrical Y. Along the stem of the Y are aggregate stockpiles and reclaiming conveyor. Along each arm are drier, dust collector, batch and mixing plant, two 15,000-gal asphalt storage tanks, a Bros recirculating asphalt heater, and a trailer carrying electrical switch gear. Between the arms, near their base, are two 150-hp Cleaver-Brooks automatic, oil-fired boilers for heating asphalt tanks and lines, a 50-cfm Schramm

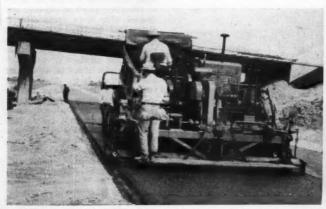
air compressor for powering bin gates, and a transformer yard that steps 11,000-v power down to operational voltages. Thus the plant along each arm is an independent one except for primary aggregate feed, compressor and transformers.

#### No Mineral Filler

All aggregate (sand and three sizes of stone) for asphaltic concrete is trucked in and bulldozed into separate piles above a 150-ft tunnel belt conveyor. Sand, 45,000 tons of it, is hauled from 30 mi away, even though local material is available. That's because the latter is deficient in fines, and the extra haul cost is far less than that of buying and handling mineral filler, which would have amounted to 4% of the mix.

First proportioning of aggregate takes place as sand and two or three sizes of stone (depending on the final mix) simultaneously drop to the tunnel belt through graduated gates fitted with reciprocating feeders. Outside the tunnel, the combined sand and gravel falls through a mixing paddle to a second belt that discharges directly above the dividing wall of a two-compartment surge hopper. The material is thus split so half will feed each separate asphalt plant.

Aggregate from each compartment goes by feeder and belt to a drier, thence to the plant screens where it is re-separated for storage in four hot bins (1 in. to ½; ½ in. to No. 4; No. 4 to 200, sand). Dust from a 3-unit collector is put back at the hot elevator.



HOT MIX is placed in three 1½-in. compacted layers over double lift of penetration mecadam. Width of first plant-mix course is 24 ft 8 in., second is 24 ft 4 in., third is 24 ft (shown here). All are spread by one paver in each lane, close to each other.



PETE HUNTINGTON, Groves' able assistant project manager, guided CM&E editor around his big, fast, well-run paving job.



GRAYEL SHOULDER is placed by Apsco widener after pavement is completed. Size of drive wheels and tires was increased for ease in pushing heavy truck while spreading wide width. After compaction, gravel shoulder will get double bituminous surface treatment.

Aggregate grading and job formula for both leveling and surface courses are listed in accompanying tables. Aggregate is weighed automatically by the plant's pushbutton control system that can be pre-set for as many as 12 different mixes. Asphalt is weighed manually on a separate scale. Plant cycle is 54 sec: 8 sec for discharging one batch and loading the next, a 12-sec dry mix and a 34-sec wet mixing after asphalt is added.

A fleet of 15 trucks and 4 semitrailers delivers the asphaltic concrete to the pavers in 6-batch loads. Haul is contracted to local truckers at a flat tonnage fee for delivery to any part of the job. The single rate per ton delivered, regardless of length of haul, simplifies bookkeeping and payment. Interestingly, the sections closest to the plant will be among the last to be paved.

The hot mix is spread by two Barber-Greene finishers advancing

down the pike in echelon. The first  $1\frac{1}{2}$ -in. course is put down slightly heavier (175 to 180 lb per sq yd) than the subsequent two courses (165 lb each) to take care of voids in the penetration macadam surface.

Groves turns over the penetrated and seal-coated road to Alexander in stretches of 1 to 2 mi, and pavement is completed on each stretch before the next one is tackled. Always moving in the direction of traffic, the machines work up one roadway, back down the other, until all three layers have been placed on that stretch. Each laver is compacted by Galion and Buffalo-Springfield 2- and 3-axle tandem rollers. Tolerances of 1/4 in. in 10 ft on the leveling courses and 1/2 in. in 16 ft on the surface course are met without difficulty.

Alexander started hot-mix paving on June 18 and expects to complete the 151,000-ton, 605,000sq yd job early in November. This

Table I-Aggregate Grading

	(Percent	rassing, by	weight)
-	Sieve Size	Leveling Courses	Surface Course
	1"	100	
	34"	92	100
	3/2"	85	97
	36"	70	75
	No. 4	40	45
	No. 8	30	40
	No. 30	20	24
	No. 100	6	4
	No. 200	3	2

Table II—Job Formula (Weight in Pounds)

Material	Leveling Courses	Surface Course
Stone • 1" to 1/2"	480	
" • 1/2" to No. 4	1,040	1,920
" • No. 4 to 200	1,360	560
Sand	1,120	1,520
Total Aggregate	4,000	4,000
Asphalt • 85-100 penet.	187	230
Total Batch	4,187	4,230
Placing Temperature (deg F)	290	270

is in spite of temporary grade crossings and unfinished turnpike bridges that have made it necessary to pave in comparatively short jumps and to return later to fill in the gaps. Best day's production has been 2,930 tons in 10 hr, and over-all average is better than 2,500.

#### **Project Personnel**

S. J. Groves & Sons Co.'s contract for paving the south 201/2 mi of turnpike is \$6,300,000. Project manager is J. P. Mathews and assistant project manager in charge of paving is P. F. Huntington. H. M. Johnson, Jr., and Bud Thornberg are grading and equipment superintendents, respectively. Bud Gray is superintendent for Alexander Construction Co. on the asphaltic concrete subcontract. New Jersey Turnpike Authority consultant on this section is Baltimore's J. E. Greiner Co., for whom Ellis P. Root is resident engineer and R. B. Maguire is chief paving inspector.

NOTE—Previous articles on the construction of the \$240,000,000 New Jarsey Tumpike were published in Construction Methods and Equipment, Oct. (page 56) and Nov. (page 49), 1950. Aggregate production was described in Aug., 1951, page 50.

N. J. Turnpike Paving Contractors

The or template Faring Community						
Section	Miles Amount		Contractor	Asphaltic Concrete Sub		
1	201/2	\$6,314,000	S. J. Groves & Sons Co. Minneapolis, Minn.	Alexander Construction Co. Minneapolis, Minn.		
2	18	5,091,000	A. I. Savin Construction Co. East Hartford, Conn.	Kelley & Meyer Co. Youngstown, Ohio		
3	21	5,895,000	George M. Brewster & Son, Inc. Bogota, N. J.	Tioga Construction Co. Lancaster, Pa.		
4	25	7,087,000	George M. Brewster & Son	Tioga Construction Co.		
5	14	6,296,000	S. J. Groves & Sons Co.	Utility Construction Co. New Brunswick, N. J.		
6	101/2	5,559,000	Gull—Tully & Di Napoli New York, N. Y.	American Paving Corp. Newark, N. J.		
7	7	3,289,000	George M. Brewster & Son	(8000000		

# PINE FLAT DAM... Single, High-Speed



HEAD TOWER for each cableway is on straight tracks. This tower powers the standard Lidgerwood cableway. Structure for the new, fast cableway is similar.

In south-central California, in a steep valley of the Kings River, the Corps of Engineers is constructing a \$24million flood-control project—Pine Flat Dam.

While organizing the construction plant to produce aggregate from local material, to cool and batch the concrete, and to deliver it by cableway, numerous tough requirements were met by improving upon accepted equipment installations to step up the capacity of plant and guarantee quality of product.

This article will be published in three parts: Part I deals with the greatest innovation: a fast cableway; Part II will describe concrete cooling and batching; Part III will trace the production of aggregate.—The Editor

#### Part I—The Fast Cableway

By L. L. WISE, Associate Editor

THE NEW CABLEWAY, designed by the sponsoring contractor, Guy F. Atkinson Co., in the joint venture of Pine Flat Contractors, is designed to operate at better than 2,000 fpm. This compares with something like 1,200 fpm for the cableway operated in the construction of Shasta Dam in northern California (now producing power), where some 5 million cu yd of concrete were placed.

With the faster speed, it is expected that one cableway will do the pouring job whereas two might have been necessary. There are two 25-ton cableways at Pine Flat,

one a standard Lidgerwood rig used almost entirely for moving forms and servicing the work.

Most important change in the cableway set-up that permits high speed is a new drive-motor mounting and gearing. Also important are dc instead of ac motive power and revised haul cable rigging.

On the standard cableway, one 500-hp motor drives both hoist drum and haul drum. The drums and gears are separated by clutch mechanisms. Under this arrangement simultaneous operation of hoist and haul is impractical.

The new cableway has separate

# Cableway Places 4,000 Yd Daily



PINE FLAT DAM, highest and largest concrete dam yet built by Army's Corps of Engineers, will impound flood waters on the Kings River in California. Concrete batching and cooling facilities located

high on the bank at the right will feed mix to the 440-ft high structure. Earlier, river passed through lowest blocks. These are being built up as waters go through new outlet conduits.

motors for the hoist drum and for the haul drum. In fact, each drum is powered with two motors rated at 250 hp each—one located on each side of the drive gear. One drum can be operated at reduced speed by a single motor, should the other fail. Two 1,000-hp motorgenerator sets are required.

There are no clutch mechanisms; drive motors are connected to drive drums by gears. The result is smoother operation.

Braking is automatic. Since there is no clutch, the motors operate during the braking periods. The load is first slowed by electric braking and mechanical hand brakes bring it to a stop. The motors, acting as brakes, under reversed conditions, pump power back into the line, thus saving

some cost and keeping equipment under full control.

Under the old system of rigging, it is impossible to run the haul drums at speeds as fast as the new rig. On this high-speed cableway, double-drum rigging is used on the haul cable (endless cable). One drum is the drive drum and the other is an idler drum that is not powered.

The operator has only two knobs to handle, one for hoist and one for haul. He roosts in an enclosed platform jutting out from the concrete mixing plant. Here he lands buckets for filling without resorting to signals.

An alternate operator is in the cableway head tower. He takes over only when the equipment is to be operated very near the head

#### Pine Flat Dam Facts

Type—Concrete Gravity Height—440 ft max

Highest dam built by Corps of

Eighth highest concrete dam in the world

Mass—2,200,000 cu yd Largest Corps of Engineers con-

crete dam

Sixth largest concrete dam in the world

the world
Length—1,820 ft
Thickness (max)—350 ft
Spillway—Six 42-ft long by 38-ft
high radial gates with flip-bucket
instead of stilling basin
Outlets—Ten 5x9-ft conduits

Reservoir capacity — 1,110,000 acre-ft

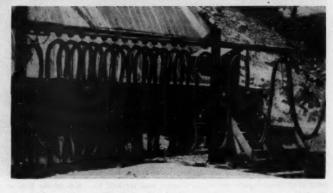




HIGH-SPEED CABLEWAY OPERATOR (above) is situated in enclosed overhanging platform at batch plant. Here he has full view and control while landing the 8-cu yd Gar-Bro bucket. Electrically operated transfer car takes material from batch plant to bucket. Body of car tilts to eliminate segregation.

SIMPLE CONTROL SYSTEM (upper right) is one feature of the new, fast cableway. Note simple levers for controlling hoist and travel. This operator, sitting in the head tower, is for standby only. He also serves as head-tower oiler.

POWER CABLE (right) for head towers is neatly coiled on expanding suspended track. This reduces cable weer.



tower. This operator is also an oiler.

Smooth operation of the machinery help to simplify the operator's work. This is due to de power and also to an amplidyne control system. (Amplidynes are small generators that vary the charge in the coils on the drive motors).

Other electrical controls are installed to guarantee safe movement of head and tail towers. One set keeps the towers traveling at the same speed. If they were to get out of line, undue stress would be induced upon the main cable.

Another set of controls consists of photoelectric cells installed to prevent towers of the two cableway systems from colliding.

Some "bugs" have, of course, developed. At first the drive drum shaft was not able to stand the high-speed operation. However, by nesting the drive shaft in roller

bearings this difficulty has been overcome at this writing.

Also, the slack carrier has not operated as intended. It was designed to follow travel of the main hoist rig automatically, and to support the various cables to keep them from fouling. These difficulties are being overcome gradually as they develop.

The job is really just well under way and the contractor expects good operation for the long haul ahead.

Production has reached more than 4,000 cu yd in a 24-hr day, using this single high-speed cableway at 1,800 fpm and with the standard rig doing all the servicing. Best monthly total was reached in April with 80,694 cu yd poured. The required pouring schedule can be met by far smaller amounts. The extra-high utility derived from this single-cable setup may point

the way to simpler cableways for similar construction in the future.

The high-speed cableway was developed by the sponsoring contractor on the work, Guy F. Atkinson Co., and built by the Willamette Iron & Steel Co. The General Electric Co. supplied the electrical equipment; head and tail towers were fabricated and erected by Bethlehem Pacific Coast Steel Cop.

Other participating firms in Pine Flat Contractors are Bressi & Bevanda Constructors, Inc., Charles L. Harney, Inc., J. A. Jones Construction Co. and A. Teichert & Sons, Inc. Earl Jennett is project manager, George Archibald is project superintendent, and Guy Heimsoth is assistant project manager.

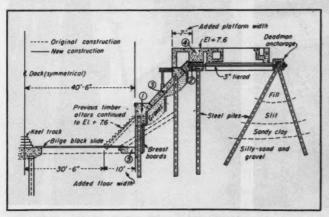
The job is a project of the Sacramento District, Corps of Engineers, for which Col. C. C. Haug is district engineer. R. B. Jenkinson is resident engineer.



OLD TIMBER GRAVING DOCK at Baltimore shipyard is mod- has been completed, while work continues on right. Dock had to enized and reconstructed with concrete. Here, left side of dock be kept in service, and 194 ships were moved in and out during job.

# Keeping Structure in Service Complicates Drydock Rebuilding

By EUGENE J. NELLEY, General Superintendent, The Foundation Co., New York, N. Y.



TYPICAL SECTION through dock shows extensive reconstruction necessary to modernize and widen old structure. Circled numbers indicate sequence of operations, handled in 20- to 60-ft sections longitudinally. Upper operations went on when dock was flooded.

DREAD HAVING A WET JOB? The Foundation Co. successfully completed one that was flooded literally hundreds of times: reconstruction of a graving dock that had to be kept in service while the work went on. Flooding of the drydock—and the work—for entrance or exit of ships wasn't as bad as having a cofferdam overtopped, of course. But it did mean that excavation, formwork and other operations had to be secured on short notice. And there were 194 such ship dockings during the 18-month job.

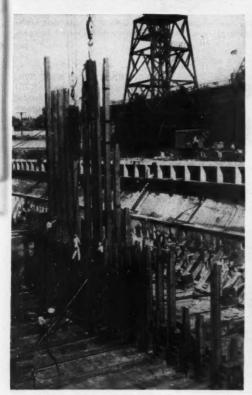
The 600-ft graving dock, completed in 1901 at Bethlehem Shipbuilding Corp.'s Baltimore repair yard, was of timber construction with clay backfill. Reconstruction (sketch) included new concrete platforms, walls and keel track. On each side, 30 ft of old masonry wall and 500 ft of timber side slope were cut back 10 ft at the toe to make the dock floor 20 ft wider. New platforms extending inward at the top added 14 ft to the total working space at that level.

The reconstruction required extensive planning for flexible and mobile operations because of the necessity for pulling out of the



AT ALL STAGES of construction, side-wall must be ready for operations to be secured on short notice so dock can be flooded for ships. Here, much of lower and upper platforms has been

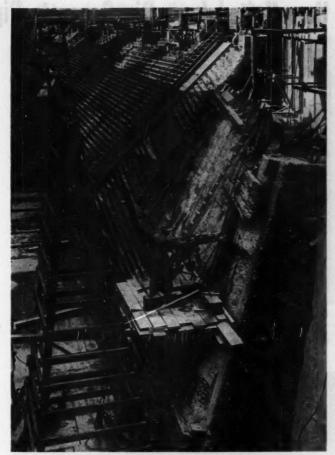
poured, and work is concentrated on side slopes, which act as reinforced concrete beam between them. P&H truck crane and Manitowoc crawler handle excavation, forms and concrete for walls.



LONG STEEL PILES for keel track foundation are supported by heavy timber frames, while McKiernan-Terry hammers drive them down. Hammers are hendled by shipyard's large gantry cranes.



DOCKED SHIP leaves little room for contractor's operations. Sloping timbers of old dock wall are being removed; show additional floor width gained by new vertical wall construction.



MASONRY WALL at entrance is drilled for widening by tripod-mounted drifter, and section will be blasted out despite proximity of docked ship (extreme left). On other side of entrance, huge leak was stopped with sheeting, calking and pressure grouting.

drydock during ship movements. Therefore, only 20- to 60-ft sections of dock wall were opened up at a time, and were completed, as shown in the sketch. During dock flooding and dewatering, work was shifted from floor and walls to top-side operations to minimize lost time. The only extensive time the dock was without a ship was one 8-day period during which the contractor shifted from the usual one-shift day to a threeshift operation to drive 250 14in.x60-ft H-piles in the keel track, and again for 3 days in which the keel track foundation was excavated and concreted.

The 80-ft sections of old masonry wall were widened by line drilling and blasting in blocks 10 ft high and 15 ft long. Then a 24-in. reinforced concrete wall was poured, bonded to the old wall with dowels on 2-ft centers. Blasting was carried on with propellers and rudders of docked ships as close as 20 ft to the blasting mats.

Where possible, the existing timber drydock walls were used to facilitate the new construction. For example, frames for driving new foundation piles were pinned to the old wall, and wall members acted as braces for breast boards and forms.

Some 900 H-beam piles averaging 60 ft were driven to support the dock walls and keel track. Aligned and held by timber frames of 8x8s and 12x12s, piles were driven by crane-handled free

hammers with long belled skirts that held them in position. As mentioned, frames were pinned to the dock timbers for driving plumb piles in the wall and platform foundations, but they were counterweighted for handling batter piles in the deadman anchorages.

Excavation was with clamshell and by hand, with the cut held by breast boards. No earth walls were ever left exposed because of the flooding and dewatering of the drydock at frequent intervals.

Forms were made up in 20-ft panels of 2x8-in. T&G lumber with 3x6-in. studs and wales. They were held in place by fastening to the new steel piles or to the old dock timbers. Form use ranged from 6 to 15 times. Reinforcing was generally %-in. rods on 6-in. centers pre-assembled into mats and set by crane. Concrete, a 7-bag mix with Pozzolith additive and a 5-in. slump, was placed by crane bucket or chuted directly from transit-mix trucks to the forms.

The Foundation Co., New York, was general contractor for both the design of the drydock improvements and the actual reconstruction. Their chief engineer, A. Amson, handled the design, incorporating the working platform and utilities ideas of S. F. Boyce, Bethlehem Steel Co. plant engineer. The author and Charles Erikson, The Foundation Co.'s general dockbuilder foreman, developed the construction techniques and directed all field operations.

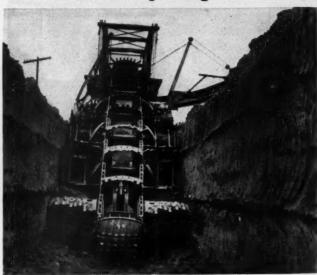


PROJECT PERSONNEL includes [1 to r]:

A. McMullen, field inspector of construction for Bathlehem Steel Co.; The Foundation Co.'s general dockbuilder foreman, Charles Erikson; and their general superintendent, E. J. Nelley, author of this article.

## How United Lays Big Concrete Pipe

 United Concrete Pipe Corp., of Baldwin Park, Calif., has organized their \$4,250,000 contract for 17 mi of 78-in. concrete pipe for the San Francisco Water Dept. into fast, clockwork precision operations. The pipeline is part of the city's third conduit for Hetch-Hetchy Aqueduct, extending from Irvington to Crystal Springs Lake. Here is a step-by-step picture story of the job that is sparked by a special ditcher that digs a trench 100 in. wide and 12 ft deep in one pass.



BIG PIPE JOB is sparked by this special-built ditcher combining a Buckeye 224 Trencher with Austin bucket lines, all powered by Caterpillar geared-down diesel engine. Machine, which can dig up to 500 ft of trench per day, is shown here posed for a picture with bucket lines empty. It doesn't trim the bottom that neat, either—that tales hand work.



1 IN THE VAN of pipelaying operations is this Caterpillar No. 12 motor grader smoothing the way for the ditcher to follow. United believes time spent in preparing ditch here is well spent, paying off in easier and faster travel of trencher. Bladed area also

serves as temporary roadway for trucks delivering pipe lengths to the line. Pipe will be strung along dirt cradle at left until it is lowered into trench, kept from rolling sideways by graded ridges.—Caterpillar Tractor photo

## ... A Step-by-Step Picture Story



2 BIG DITCHER WALKS across rolling terrain, leaving a trench 100 in. wide and 12 ft deep behind it. In the beckground is a dragline cutting ditch up hillsides too steep for trenching machine to negotiate.—Caterpillar Tractor photo



FOLLOWING CLOSE BEHIND ditcher at work are three workmen shoveling loose material into buckets and roughly trimming bottom to accommodate pipe. That good old California clay stands up nicely without shoring.



4 FINAL TRIMMING of trench bottom is done by hand shoveling. Trencher is accurate to 2 in. high or low; difference is made up by handcutting or filling.

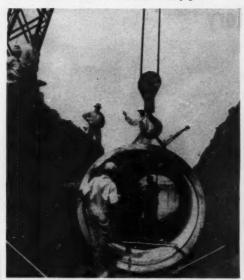


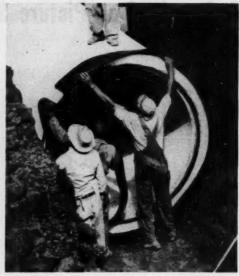
5 TONGUE END OF PIPE is painted with asphalt, and rubber gasket is inserted in formed groove while pipe length is still outside of trench.





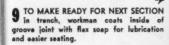
6 PIPE IS RAISED by sling around tongue end of joint (top) so lifting sling can be slipped under center of pipe length (bottom) preparatory to setting. (Continued on next page)





7 CRANE WITH WIRE ROPE SLINGS eases a pipe length into the trench. While still in suspension, pipe is pulled home into tongue-and-groove joint by hand ratchet comealong; screw post serves as back anchor for ratchet.

8 WHEN JOINT IS IN PLACE next step is to wrap tarpaper strip around outside end as form for grout closure.











10 TARPAPER GROUT FORM is pulled up tight around open joint (left) and then is fastened in place by steel staples (right). Pipe is now ready for backfilling to above springline which will hold pipe and paper in position. Bottom backfill is puddled to assure solid foundation.

11 WITH PIPE AND PAPER GROUT FORM held fast by backfill, joint is blown out with compressed air jet before it is filled with grout.



12 TONGUE-AND-GROOVE JOINT between pipe sections is filled with cement grout poured through chute from top of trench into opening at top (left). Grout is worked into joint all



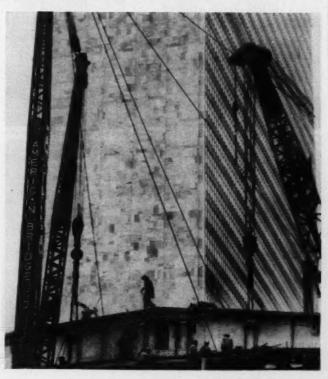
around the pipe by flexible snake (right). After grout has set in joints, pipeline is pressure-tested before remainder of backfill is placed in trench.

#### **Big Lift for World Peace**

TWO HUSKY GUY DERRICKS juggled the loose ends of two 59-ton girders (see picture), framing the roof of the United Nations General Assembly Building at New York, while ironworkers bolted up 16 tons of splice plates joining the two girders together. The twin girders, of silicon steel to reduce weight, span a clear distance of 130 ft. All splice plates are also silicon steel.

American Bridge Co., steel erection contractors on the job, devised a simple scheme for erecting the heavy girders. Two timber towers were set up to carry the mid-span end of each half-span, each tower being placed just outside the splice area. Guy derricks then set the half-span girders, one end fastened to the outside column, the other end resting on a tower. Bottom flange splice plates rested on beams spanning between the two towers.

After the splice was pinned and bolted with the help of the two guy derricks shown, the splice assembly was riveted up. Rivets are 1\%x11 in., of special manganese alloy steel for extra strength. American Bridge Co. also erected the U.N. Secretariat Building shown in the background.



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Lots of Equipment Kept in Top Condition, Coupled With . . .

# **CLEVER IDEAS**

Spark 30-Million Yd Job at Garrison

By HAROLD W. RICHARDSON, Editor









IN THE CUT: Four types of excavating equipment load out better than 50,000 yd daily. At top is one of 5 Euclid loaders and a Bucyrus-Erie 120B electric 6-yd shovel. Below are two draglines,

a Northwest crawler and a Monighan walker. All load into 25-yd Euclid bottom-dump wagons (66 of them on the job) which have been built up with side boards to haul up to 35 yd. THIRTY MILLION YARDS of rolled fill is a lot of dirt in anyone's contract, but that's the yardage accumulating in Stages II and III at Garrison Dam on the Missouri River in North Dakota.

Successive contracts for the two stages were awarded by the Garrison District, U. S. Corps of Engineers, to the combination of Peter Kiewit Sons, Co., Omaha, and Morrison-Knudsen Co., Inc., Boise, Idaho. In their third year on the job, PK-MK now have only 2 million yd left to go.

Veteran project manager Ben Williams—who needs bow to no one when it comes to earthmoving—and his efficient organization had a lot of good ideas at the start of this big job. In addition, all through the life of the contracts they have come up with more and more clever tricks so that now it is the slickest, best-organized and smoothest - working dirt - moving operation we have ever seen.

Right now, because of topping out the west end of the big dam with resultant restrictions in working space, they are slowed down to 50,000 yd per day of two 10-hr shifts. A while ago they were rolling along at a 115,000-yd daily clip.

Topping all else is the fact that PK-MK believes in good equipment, and plenty of it. Then, this equipment is backed up by a field service and repair outfit seldom equalled.

Ben Williams separates his repair service organization from his production organization. Each has its job to do, but the service group has final say on what equipment units are available and what units should be shopped for overhaul.

#### Lots of Big Stuff

Let's take a look at the equipment array. Here are the major items: 66 25-yd bottom-dump Euclid wagons (built up with side boards to haul up to 35 yd); 6 enddump Euclid trucks; 3 10,000-gal water wagons on Euclid chassis; 48 Allis-Chalmers HD-19 tractors, of which 24 have been converted on the job to HD-20 class by replacing the original General Motors 6-71 engine with GM 6-110 engines with enlarged radiator; 5 Euclid loaders; 1 Monighan walking dragline with 7-yd bucket; 3 Bucyrus-Erie 120-B electric shovels with 6-yd buckets; 12 Allis-Chalmers AD4 graders; 48 miscellaneous Chevrolet trucks-pickups, fuel, service and greasing trucks, and buses for transporting workers to



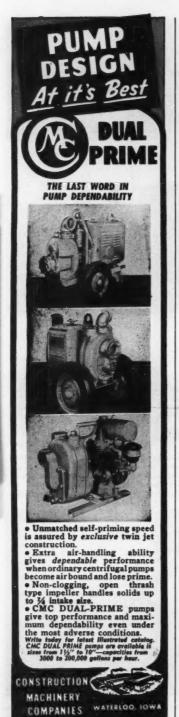




ON THE FILL: Haul roads are kept in excellent shape by fleet of A-C AD4 graders (top). Siamese A-C tractors (middle) on common bed frame, designated the HD-38, were developed on job to knock down heavy indrows left by 35-yd Euclid loads. Endless trained for rollers compact fill to required density. Special shale-chopper roller (bottom) with knife-edge teeth pulverizes the Ft. Union shale for further compaction by sheepsfoot rollers.



BOULDERS are picked off fill and loaded into Euclid end-dumps by 4-yd Tractomotive rake scoop loaders. Rocks are first plowed out of fill by rake bulldozers. Fill is taken from intake, outlet and spillway channel and there will be some 16 million yd of waste.



#### GARRISON DAM . . . Continued

and from the contractor's camp.

Other major items of equipment include: 2 No. 80D, 2 No. 95 and 1 No. 6 Northwest shovels and draglines; Tractomotive loaders; 18 Kato 20-kw light plants mounted on skids with 70-ft floodlight towers; three Caterpillar scrapers; one shale-chopper roller; numerous sheepsfoot and flat rollers; and one car dumper for unloading riprap. And last, but a honey of a rig, is a Siamese HD-38 bulldozer, built up of two HD-19 tractors handling an 18-ft blade.

#### Big, but not Biggest

Garrison Dam, on the Missouri, 75 mi north of Bismarck, N. D., will be the biggest rolled-fill embankment built to date—70,000,000 cu yd of fill with a crest length of 12,000 ft. Its fame as the world's largest will be short-lived, however, for Oahe Dam on the same river at Pierre, S. D., just started, will contain 78,000,000 yd of rolled fill.

All of Garrison's fill is coming from the intake, outlet and spill-way channel; and there will be some 16,000,000 yd of waste from these items. PK-MK's present operations are excavating the lower part of the outlet channel and filling the top of the right embankment—a 4,000-ft haul with a lift of more than 200 ft.

Key to the contractor's operations are the shop and service facilities. The excellent shop is capable of handling any equipment requirement. Here, in addition to job repair and overhaul, they build up extra engines, sub-assemblies, transmissions and Hydrotarder braking units used on the Euclid wagons, all ready for quick change.

Euclid has established a parts warehouse on the job. Sweeney Bros., of Fargo, A-C distributors for North Dakota, has set up a big stock of Allis-Chalmers parts in another warehouse

Firestone has a service contract for taking care of all tires and batteries on the job. Its field service truck for minor repairs and services and tire inflation roams the job. The contract calls for authority for replacement of any tire when deemed necessary. Part of the service includes repair and vulcanizing of big tires in a splendid shop on the job. It was found. after considerable experimenting, that the big tires (27.00x33) should be carried at 55-lb pressure for best results. A. C. Anderson is manager of the Firestone shop:

Harold Prihada is superintendent of service.

On a job this big, earthmoving is primarily a problem of organization. Excavation at Garrison yields several types of material, each of which must be wasted, stockpiled (lignite) or placed within certain zones in the dam. The loaders, draglines and shovels are now working in the outlet channel, placed for best production.

Assigning of excavating units to certain areas, and supplying them with adequate hauling units is the main operational problem each shift. The shift superintendents get out on the job 2½ hr before their shift goes to work, to get the general lineup of operations and to plan the work for the next 10 hr.

Ben Williams took us on a tour of the job at night, and again in the daytime. We'll simply report the many interesting and resourceful ideas we found, accompanied by pictures in most cases.

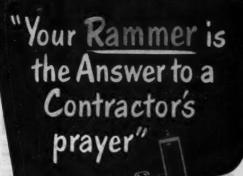
Haul roads are excellent, and are kept well graded and sprinkled. Traffic lights have been installed at two busy intersections, controlled by an operator from a near-by tower. There are two roads leading to the main embankment. One for exclusive use of Euclid hauling units, is maintained like a boulevard. The other road accommodates all other equipment moving on and off the fill.

#### **Butane Power**

All the Euclids are butane-powered with 325-hp Hall-Scott engines. These engines have higher compression ratios than diesels and the contractor reports that butane engines have a longer life, require less service, and burn fuel that costs 2/3 as much as diesel oil per gal

At meal time and at the end of shifts the Euclids are lined up side by side. Then two butane fuel trucks (butane is liquid under pressure) refuel the whole fleet in a few minutes. Extra water tanks have been mounted on the cab roofs to serve the Hydrotarder brakes. These tanks must also be filled at the same time the units are refueled. This is done in jig time by a pump-equipped tank truck carrying a high, cantilevered platform. The truck drives along the row of wagons, stopping momentarily at each one while a helper on the platform fills the roof tank with a hose.

All rubber-tired equipment is greased and checked at a central (Text continued on page 67)

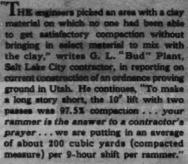




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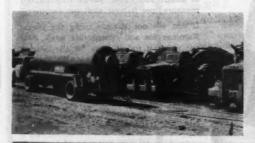
pump powered by a butane engine. Water wagons load from railroad-type spout in 21/2 min. Traveling 20 mph, the wagons spread their deluge 80 ft wide. It's duck or get drowned (above).



THIS 4-WHEEL DOLLY is slipped under Euclid wagon frame when rear axle breaks from overloading, to permit unit to be run back to shop under its own power. Special air jack raises wagon to position for dropping into dolly frame.



EUCLID WAGON DRIVERS line up their rigs for proper loading with three pairs of vertical rods on Euclid loaders. Mast carries colored lights. Each color, turned on by loader tractor operator, designates class of material being loaded.





EQUIPMENT SERVICES: Butane fuel truck (top left) refuels Euclid wagens. Water tanks on top of cabs for hydraulic brake systems are filled from water truck (top right). Other equipment is fueled, greased and oiled in field by special service truck (bottom left).





Euclids are greased, oiled and given a quick check every shift at central service station (bottom right). Here bank of lights is turned off one at a time as mechanics complete assigned tasks; when lights are all out, foremen knows every man is in the clear.

(Continued from page 64) service station some time during every shift. This station is manned by a foreman and four men, each with specific duties. When a unit pulls into the station a board containing four different-colored lights is lighted. As each grease monkey completes his specific task, he turns off his assigned light. When all lights are out, the foreman waves the driver back to work.

Shovels, draglines, tractors, loaders and light plants are serviced in the field by well-equipped service trucks.

Every piece of equipment is given careful inspection once a week. Units that can travel go to field inspection stations; others are checked wherever they are working. Once a month every unit goes to the shop for a more complete inspection and worn parts are replaced.

Equipment supervisors have complete control over these inspection periods, and they order the units in on a regular schedule-regardless of how badly any particular machine may be needed by production forces at the time. As a result, equipment 3 yr old that has moved nearly 30 million yd is in perfect condition today.

#### Fellow the Color

Maybe you think Euclid loader operation is prosaic, routine procedure. Not at Garrison Dam. Here, Ben Williams has made it a controlled, scientific operation. Excavation runs into several classes of material. Those various classes suitable for the embankment must be placed in their respective zones in the field.

Each class of material has been given an identifying color and each Euclid loader carries a string of lights in these colors. The operator is told what class of material he is handling and he turns on the corresponding colored light. Then each Euclid wagon driver assigned to that loader hoists a flag of the same color on his cab. As he rolls on to the fill, the grading foreman waves him to the correct zone, and he follows a line of colored flags to the point of dump. Materials loaded by shovel and dragline are handled the same way.

Here's another Euclid loading trick. The Euclid wagon driver, sitting beneath an extra-heavy, 3/5-in. steel canopy specially ordered for these units, can't see his load. But the loader tractor operator can observe the loading. So they have welded three pairs of vertical bars on the loader, one row on the

main frame, the corresponding bars on the big side bumper bar.

Now the wagon driver pulls up and aligns himself with the front pair of bars. This position loads the rear of the wagon. When the dirt shows up above the sideboards, the tractor operator gives the wagon driver the high sign and the wagon drops back to the center pair of rods to load the middle of the wagon. Again, the tractor operator waves the wagon driver back to the third pair of rods, which loads the front end. When the wagon is filled, the tractor driver waves the load off to the fill. Simple, but very efficient!

#### **Big Splash**

Now let's look at the sprinkler trucks. On these 10,000-gal units there are 18 outlet nozzles located radially around the top rear of the truck. Each tank unit carries a 6-in. Gorman-Rupp pump that can unload a tankful in 8½ min. These tanks spray a strip 80 ft wide and the trucks travel at least 20 mph, or else the fill or haul road gets too wet. The units carry a big, flashing blue light, and when you see that light coming at you, duck lest you get drowned.

The tank trucks are filled from a 14,000-gal tank fitted with a railroad-type spout that discharges 10,000 gal in 2½ min. But even here we find an ingenious arrangement. The tank intake pump works on a float switch, so as soon as a truck starts loading, the pump goes into action. Yet the truck drivers returning for another load often found the tank practically empty, even though the pump was running. Investigation would reveal a cat fish or piece of driftwood blocking the foot valve.

They rigged up a simple, foolproof gadget. They put a flap across the discharge end of the intake pipe. When water is being pumped into the tank, the flap is forced open, closing a switch that lights a blue floodlight on the side of the tank. Thus, when the tank truck driver hears the pump running and sees the light on, he knows everything is all right. If the light fails to burn, he notifies a mechanic at once. Simple, yet it saves a lot of lost time.

Here's another time-saving gadget. The Euclid wagons are being way overloaded—35 yd on a 25-yd capacity unit. So occasionally a rear axle breaks off close to the side-frame. A 35-yd load on a busted-down wagon can clutter up the works. But they've licked this

(Continued on page 70)



Super-Vulcan drives piles down faster, easier, and with savings in costs. Twice the blows per minute does the job. And each blow requires 25 to 35 per cent less steam.

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# GET ABOARD THE



Page 68 — CONSTRUCTION Methods and Equipment — October 1951

# BIGRED TEAM PROFIT TRAIN!



B - 250 22-YD, CAPACITY

Three TD-24 and B-250 combinations owned by J. S. Moorman, Muskogee, Oklahoma, work on a flood control project in Ft. Worth, Texas.



October 1951 — CONSTRUCTION Methods and Equipment — Page 69



Regular cleaning prevents corresion and abrasion; uncovers need for repairs before damage is serious; saves up to 40% of mechanics' time on repair jobs because no grease wiping is

Stubborn road oils, mud, dirt and grease blast away easily with the soop, water and heat a Malshary Heavy-duty Cleaner delivers at pressures up to 400 lbs. Cleans in ¼ to ½ time required by conventional attem vapor cleaner. Simple, rugged, dependable. Free from gadgets. Model 300 in illustration, 1 of 3 heavy-duty sizes, gives you 5 cleaning actions; pressures of 250 te 400 lbs.; capacities 300 to 2100 gallons per hour.

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HUNDREDS OF 50-ton carloads of big riprap stone are unloaded in a few seconds each by a car dumper. Car of loaded stone is hauled up ramp into loader by hoist line; empty cars return to yards by gravity. Here Northwest shovel keeps right on loading out into Euclid end-dump while dumper crew clamps car in place.

problem too, not by cutting down the loads, but by building a neat 4-wheel dolly that can be slipped under the side frame after the wagon is jacked up with special air jacks (also developed on the job).

With the broken axle riding on the dolly, the unit can be dumped, and then driven to the shops under its own power for repair under conditions much more ideal than those found on the fill.

All rock more than 6 in. must be removed from the fill. A couple of rake bulldozers plow up the rock. Then a 4-yd Tractomotive loader on an HD19 tractor picks up the rock and loads it into Euclid end dumps.

This contract calls for placing a lot of riprap on the finished upstream slope. To handle this big stone, delivered to the job in gondola cars, the contractor installed a car dumper that unloads a car of rock in a few seconds. It is then loaded out by shovel into end-dump trucks.

PK-MK are highly safety minded, and have assigned real authority to the safety engineer on the job. One outstanding safety feature is a requirement that all personnel working on the ground wear bright red caps in the daytime. These caps have fluorescent reflecting strips for night visibility. At night, anyone not wearing a cap must wear reflecting belts.

Loran Hollins is safety engineer. In addition, he is supervisor of transportation in charge of the buses that haul the workmen back and forth from mess hall and camp to the job. The bus drivers make up the company baseball team, so

Hollins became manager of the team. PK-MK runs the camp that takes care of all construction workers from three contracting outfits on the job.

For the U.S. Corps of Engineers, Brig. Gen. Don G. Shingler is division engineer, Missouri River Division. Lt. Col. R. J. B. (Nip) Page is district engineer, Garrison District, and Lt. Col. R. P. Davidson is assistant district engineer. John Sibert is special assistant for construction and operations, Robert H. Hayes is chief, engineering division, and H. G. Hutchins is chief, construction division.

Ben Williams is project manager for Peter Kiewit Sons' Co. and Morrison-Knudsen Co., Inc. His key personnel include: F. C. Bartholemew, chief engineer; Frank Dickey, assistant chief engineer; Ed Pearson and Buck Norton, general superintendents; Lynn Abrogast, equipment superintendent; Carter Barr, service superintendent; Loran Hollins, safety engineer; Harvey Opplinger, office engineer; Jack Douglas, Raymond Shepard, Hank Henry and Leonard Oats, assistant superintendents.



SPIKE SEZ: Put a brace under that raised body when you ail it!

ann





Fig. 3—1960 ton welded steel rigid framework for the 14-story Brodview Apartment, Baltimore, Maryland, Fabricators and Rectors; The Vulcan Rail and Construction Company, Baltimore, Maryland. Architects: Palmer, Fisher, Williams and Nes, Balti.

Field welds were so engineered as to per-

mit field splices to be welded in downhand

positions on most joints.

#### WELDED DESIGN **ALWAYS SAVES STEEL** AND CUTS COST

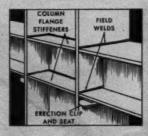


Fig. 1.—Typical Beam-te-Column connection, simplified by welding, eliminates costly angles to speed

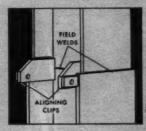


Fig. 2—Column Splice designed to facilitate simple field welding in downhand position. HERE IS PROOF

VELDED DESIGN SAVES \$30,000 ON MULTI-STORY FRAMEWORK

Baltimore, Maryland

\$30,000 over what the structure would have Maryland, welded design saved an estimated angles, steel requirements for the multiple the recent construction of the 14-story Broadview Apartment in Baltimore, cost with riveted construction. By utilizing steel more efficiently, as made possible by welding, and eliminating butt plates and story framework were cut from 2045 tons to 1960 tons.... a net saving of 85 tons.

Designed as a rigid frame, beams, columns and girders were shop fabricated at low cost with fast, downhand welding techniques.

LINCOLN ELECTRIC COMPANY CLEVELAND 17, OHIO

NIGHT-WORK DEMANDS THE





#### **ALTERNATOR SYSTEM**

On diesel or gasoline engines, replacement of conventional d.c. generators with the Leece-Neville AC-DC Alternator System gives you:

25 TO 35 AMPS. WITH ENGINE IDLING

MORE CURRENT AT ALL ENGINE SPEEDS

ACCURATE VOLTAGE HELD CONSTANT

As a result, batteries stay fully charged. There is ample current for extra lighting and accessories. "Fast idling" is stopped, saving fuel, oil, and excess wear. And all electrical equipment is protected assuring long life.

Most important, you cut down time of machines and lost manhours caused by electrical failure.

Company, Cleveland 14, Ohio



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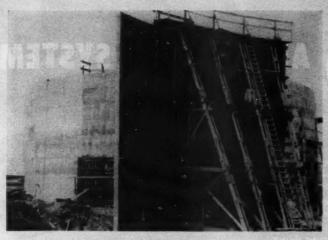


ALTERNATOR SYSTEMS . GENERATORS . STARTING MOTORS REGULATORS . SWITCHES . FRACTIONAL HP MOTORS









#### Sectional Forms . . .



IN BUILDING three concrete digester tanks for the huge East Bay Municipal Utility District, Special District No. 1, project at Oakland, Calif., a unique form-shifting technique has worked out to great ad-vantage. When it came to construction of the floating roof, the center piece and first trusses were floated into position on rafts made up of Army pontoons, riding on water pumped into the tanks.

These construction efficiency boosters were developed by William Yarnell, job superintendent for the joint venture of Stolte, Early

and Harrelson.

The tanks are 95 ft I. D., 38 ft high and have a 1:3 pitch at the bottom. After the piles have been driven, and the lower foundation is poured and completed, the inner part of the sidewall form is erected of standard sheets of 4x8-ft waterproof plywood, ¾ in. thick. Four lengths are used to form a radius of 32 ft and a lacework of backbracing is built to support the structure at the appropriate height.

On the outside, for convenience in assembling and stripping, the plywood is left in its sectional forms and marked for convenience in returning each component to its proper position, as needed.

With the inner form properly braced on a lacework, supported on a cribbing set over a horizontal plank catwalk laid on the tank bottom, the reinforcing iron is placed, outer sheathing set up, and a pour is made.

After the specified curing time

#### Floated Roof . . .

#### Speed Construction of Concrete Digester Tanks



ROOF CENTER-PIECE, weighing 41/2 tons, was lifted over wall by crane and placed in level position on pontoons. Subsequent plac-



ing of trusses was easy. Workers later installed sheet iron underdeck from rafts under roof which rested on tank corbels.

elapses, the outer face is stripped and water-sprayed. Cables are attached to the upper rim to assure absolute rigidity when the inner form is moved.

The construction crew next jacks up the inner shoring lacework sufficiently to allow removal of the cribbing and then, with great care, gradually drops the jacks enough to permit the entire inner form fabric to pivot away from the top of the now completed section of concrete wall. When the desired position has been reached, rollers are set under the shoring timbers and another group is positioned to bear the weight of the structure at various points at the base of the wall.

Finally, a system of tackle blocks and a snatch block are rigged inside the tank. A tractor, coupled to the cable end, slowly pulls the form to its next, precisely surveyed, position along the tank-base radius.

Experience indicates that a move an be accomplished in one hour.

• Roof Work—To install the floating steel-trussed roof of each of the three digester tanks, the tanks were first flooded with approximately 1½ million cu ft of water to test the 38-ft stressed concrete walls for leaks. Then a pair of stout army pontoon rafts was hoisted up and floated within.

The 4½-ton roof center-piece was lifted over the tank rim and placed on timbers running over the tops of the pair of floats. At this stage, by careful observation of the water mark against the dusty sides



STRESSED CONCRETE DIGESTER TANKS being built in sections, by 32-ft movable, sectional plywood forms. For the outside surface, the plywood is left in standard 4x8-ft sheets for ease in re-assembly (above). On the inside, complete form remains intact (photo opposite page).

of the pontoons, the stability as well as the levelness of the piece could be simultaneously coordinated with relatively little effort by the rigging crew.

Placing of the 2,900-lb trusses was accomplished by pulling the center-piece into the middle of the 95-ft dia "lake" with lines, and, with a certain amount of trial and error at the start, placing a few trusses in opposing positions best calculated to avoid subsequent shifting.

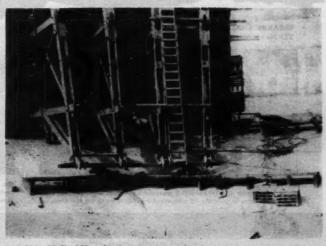
The job of fabricating the sheet-

iron deck, welded against the bottom of the roof trusses, also was simplified by making the welders and helpers waterborne.

Water was removed from the tank until its level was a convenient distance below the bottom of the roof trusses—which now rested on corbels around the tank near the top. Then the workmen installed the metal sheets with comparative ease and safety from the rafts, instead of moving around on planks supported on cribbing placed across the sloping bottom of the tank.

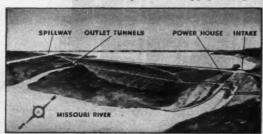


CRIBBING IS REMOVED and shoring is lowered to pivot form away from wall.



ROLLERS ARE PLACED under shoring timbers and under inner form structure after separeting from new well section. Tractor pulls form to next position along tank-base radius

BREAKIN' SHALE ON THE BERM. TD-24 pulls a 60,000-lb. capacity spike-tooth roller, evening surface of uncompacted berms. Five TD-24s are literally "all over the place" on this big project's toughest jobs.



ARTIST'S CONCEPTION OF OAHE DAM at completion in 1959. Power works above will provide 420,000 kw with 6 generators, twice as much power as South Dakota produces at present. 78 million cubic yards of earth are involved.



BIG RED REALLY KEEPS THE LOADS MOVING—Whether it's pushing or pulling, TD-24's great power and speed enable it to move more pay dirt faster.

## Rolls Out the Wrinkles on Oahe Dam





"WE LIKE TD-24 POWER," says John P. Beck of Campbell-Collins (left). Looking on are F. A. Bleecker of Guy H. James Co., prime contractor; L. G. Leavitt, area engineer; and F. P. Evans, office surjuser.

Five International TD-24s star on dam project, harnessing the "Big Muddy," creating a 250-mile lake and irrigating two million South Dakota acres.

Contractor's superintendents, dirt boss and skinners at the big Oahe Dam project on the Missouri River near Pierre, South Dakota—all will bend your ear about "Big Red."

Operator Troy Hood goes on record: "Cutting on a curve, TD-24's Planet Power steering keeps both tracks pulling so you keep all power working to do a faster job."

Here's another TD-24 skinner, Jack Rank: "Son-of-a-gun really has got the power. Much easier to handle than other tractors, easier to work, easier on me. I'm on it 10 hours a day, so I know."

Dirt Foreman Sam Crawford backs them up: "TD-24 can't be beat. We haven't found anyplace it won't go."

John P. Beck, general superintendent for subcontractor Campbell-Collins, has high praise for "Big Red": "We're well satisfied with our TD-24s. Their speed in reverse certainly is an advantage as no time is lost between pushing runs behind our ten scrapers."

There they are—solid reasons for TD-24 preference by the men who move the dirt.

Take their word for it. See your nearest International Industrial Distributor for the facts behind enthusiastic TD-24 performance reports making the rounds. Find out how he backs up the power he sells with full stock of parts, factory-trained mechanics, and the latest service equipment, to keep your equipment in the high output bracket.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS



INTERNATIONAL

POWER THAT PAYS



## **OCS**\* means <u>Trouble Ahead!</u>

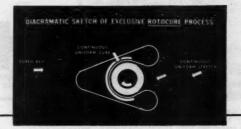
## This Achilles Heel of Conventional Conveyor Belts now completely eliminated by ROTOCURE

Your neighborhood tailor with a hot pressing iron can give you a simple but dramatic example of what too much heat and pressure applied to a given area of cloth (or rubber compound) can do to these structures. In the manufacture of conveyor belting by conventional flat press curing the result is overcured segments 2" to 4" long across the belt width. These weakened portions of the belt are inherent in this process of "start and stop" vulcanization. They get a double treatment because earlier tured areas move forward less than a full press length.

Rotocure, the modern BWH method, eliminates these Achilles Heels of otherwise strong belting. Your Rotocure belt is *constantly* in uniform motion during vulcanization.

How does it pay off? In (1) elimination of mechanical distortion at the press ends, (2) up to 40% increased belt flex life, (3) constant, uniform stretch, (4) uniform, abrasion-resistant covers. Remember the major CURE for high belt maintenance costs and premature belt failure is NO OVERCURING! You'll cut the costs of whatever you convey. See your BWH distributor or write us direct.

P.S. Look into BWH rotocured transmission belts also. They permit operation at lower tensions. You get an additional bonus in extended belt life.

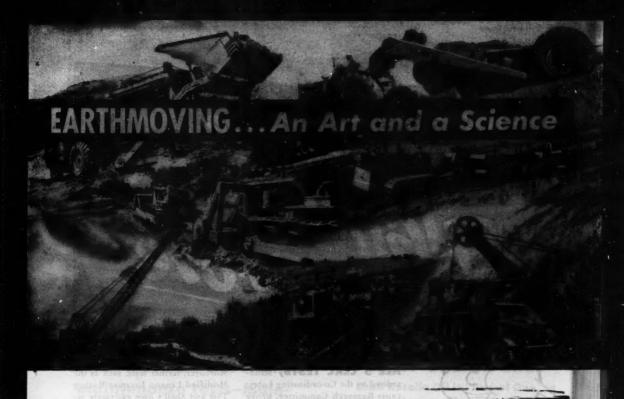




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#### 10. Power Cranes and Shovels

By E. O. MARTINSON, Vice-President, Engineering, Koehring Co., Milwaukee

THE POWER CRANE and shovel, or excavator, probably is the oldest type of mechanically powered construction and material-handling machine. The mechanical power shovel is even older than many kinds of horse-drawn excavating equipment used 20 to 50 yr ago. Thus it has had a long period of development and is more settled in its general design and operating functions than more recently developed types of machinery.

There has been little change in basic design and operating functions during the past 20 yr or so and probably there will not be much change in their basic methods of operation during the next 20 yr.

From year to year there will be improvements in manufacturing methods to reduce manufacturing man-hours. Stronger materials may reduce weights and costs of certain parts. Better design will further reduce maintenance. Use of automatic lubrication can reduce operating labor and repair costs.

This article, the tenth consecutive one in a series on the fundamental principles of earthmoving, is sponsored by the Power Crane and Shovel Association.

Torque converter power units will step up output and reduce maintenance.

However, these changes and improvements in models come more slowly than in the automotive field. Excavator models may not become obsolete as quickly as some other kinds of construction equipment, but on the other hand, because of the punishment they receive ordinarily, excavator life is considerably shorter than that of most other power tools.

A mechanically powered landtype excavator was built in 1834 by William S. Otis, who is credited with the first development of a power shovel. He was granted a patent on it in June 1836, 115 yr ago. Power shovels came into general use by railroads starting about 1865. The early shovels were 180-deg to 270-deg swing types, mounted on railroad trucks, and more than 100 machines of this type were used in the building of the Panama Canal. Full-revolving types came later.

Some railroad types were made with large flat-rimmed steel wheels to run on the ground instead of on rails. Crawler-type, full revolving shovels were developed between 1910 and 1920. The dragline bucket was developed in 1903. Gasoline engines were first applied to excavators about 1912.

#### **Operating Attachments**

Power cranes and shovels are versatile machines. The base machine is made so that various attachments can be applied or changed in a minimum amount of time. These attachments make the excavator suitable for handling many kinds of work. Although it may be purchased for one job, it can be converted easily to do a different class of excavating or material handling. It often has a ready resale or rental value because it can be so universally used (Continued on page \$2)



ALL 5 CLRC TESTS, standardized by the Co-ordinating Lubricants Research Committee, prove Shell Rotella Oil superior to the average of leading diesel lubricants... from every critical standpoint: parts-wear, corrosion resistance, ring-sticking and piston fouling.

Moreover, further tests, such as the Modified Lauson Lacquer Rating Test and Shell's own extremely severe Four Ball Test...all add proof upon proof that Shell Rotella Oil does keep engines clean longer...does extend time between overhauls...does reduce parts wear.

#### FLEET SERVICE confirms engine test results!

#### Read these authorized reports:

Yellow Cab Company, Nushville, Tenn., has 75 cabs, running 24 hours daily. They write: "We have always had trouble with sludge forming in the crankcase of our motors due to the constant start and stop driving... On some cabs this sludge completely blocked the passage of oil through the pump screen... bearings were burned out.

TELLOW CAP COMPANY

"After months of operation on Shell Rotella Oil we are glad to report that the motors (thus far) examined bave been found entirely clean, the pump screen as bright as brand new,

and we have had no bearing trouble of any nature."

Creston Transfer Company, Grand Rapids, Michigan, haul uncrated furniture to the East Coast and southern cities. Creston began using Shell Rotella Oil nearly 4 years ago to correct a serious overhaul problem due to short valve life in their trailer truck engines. Shell Rotella Oil has increased valve life from 8,000 miles to better than 40,000

miles and greatly reduced allaround maintenance costs. Creston Transfer is now expanding with hauls to nearly every state. The proved lower maintenance through using Shell Rotella Oil is a basic part of Creston's expansion planning.



SHELL ROTELLA OIL ... EXTENDS

# You can EXTEND TIME between overhauls...

#### SHELL ROTELLA OIL slashes maintenance costs-Maintains engine efficiency

#### I. Positive ANTI-ACID ACTION

Shell Rotella Oil drastically reduces wear in the vital top-cylinder zone by counteracting the acid action of unburned fuel particles. This protection is extremely important in engines with intermittent loading.

#### 2. Constant DISPERSANT ACTION

The excellent dispersant properties of Shell Rotella Oil permit it to dissolve contaminants and hold them in suspension until draining time. This prevents premature fouling.

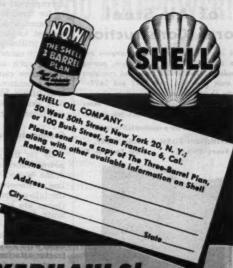
#### 3. Maintained Engine Efficiency

Is the direct result of reduced top-cylinder and ringface wear. Moreover, new or reconditioned engines operating with Shell Rotella Oil show a welcome extension of the "low oil consumption" period because of this same reduced wear. The above gains, combined with freedom from fouling and a significant increase in valve life, enable you to extend time between engine overhauls.

#### **FLEET OPERATORS!**

Shell Retella Oil is "Barrel One" in Shell's famous Three-Barrel Plan for fleet lubrication

If you want to cut lubricant inventories to the bone
... to realize savings in time, labor and materials
... mail this coupon for "The Three-Barrel Plan."
It's a practical booklet that shows how this revolutionary lubrication program can cut your maintenance costs.



TIME BETWEEN OVERHAULS!

Ask the men who live with wire rope...



They insist on genuine

## CROSBY CLIPS Drop-forged Hot dip galvanized SIZES FOR ALL WIRE ROPE DETRICATORS EVERTWHERE AMERICAN HOIST & DERRICK CO. ST. PAUL J. MINNESOTA



## of All Steel Form Construction

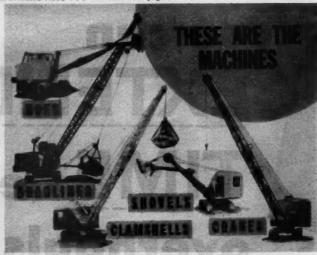
Not just a set of forms but a complete system including layouts, cost analysis, pouring schedules, Atlas SPEED forms and specialists to train your men. You SAVE and SAVE—Forms go up fast and are reused on all types of jobs without adjustments or repairs. Many report 500 and more uses. Let's talk it over.

Write Dept MC for a representative to call.

IRVINGTON FORM & TANK CORP. 20 Vesey Street New York, N. Y.



EARTHMOVING . . . Continued from page 79



and may be a safer investment than less portable or more specialized forms of material-handling and excavating machines.

An excavator is generally considered to have five basic attachments: shovel, hoe, crane, dragline and clamshell. The last three attachments use the same type of lattice boom and, for the most part, the same drum laggings for winding the cable. Draglines usually have a smaller diameter drum for the drag cable, but it is grooved for larger cable than for cranes or clamshells. The boom point sheave arrangement also may differ slightly for these three attachments.

Cranes, which are generally considered to perform lifting operations, utilize other special attachments in connection with the crane boom, such as pile-driver leads. The crane can be equipped with jib extensions, multiple-sheave load-lifting blocks, electric magnets, skull-cracker balls and other specialized lifting devices.

#### **Commercial Units**

By far the greatest majority of power cranes and shovels are built in the %- to 2½-cu yd sizes, gasoline or diesel powered, and are of the full-revolving type. These machines are considered commercial units. A few machines smaller than the %-cu yd are built for excavating purposes; there are others built with partial swing, especially tractor attachments; and some excavators are as large as 50-cu yd bucket or dipper capacity. These larger machines are more special-

ized in design and must be mostly assembled on the job because their size prohibits shipping as one unit. They are generally electrically powered.

#### **Operating Equipment**

Excavators usually are provided with six different operations, which are not always independent. The swing mechanism may be operated through the same clutches as the travel mechanism. The shovel retract operation is sometimes performed by the same clutch that operates the boom hoist drum. On still other machines, the boom hoist drum may be operated by the same clutches which provide the swing and travel operation. The following operations usually are standard:

- Main Heist—Provides the usual lifting operation on the crane, dragline, clamshell, shovel hoist and hoe boom; lifting through a clutch and brake, which may be controlled by straight mechanical lihkage, mechanical with booster clutch or hydraulic, air or vacuum boosters.
- Secondary Hoist Drum This hoist drum usually is provided with clutches and brakes identical to the main hoist. It may be equipped with different laggings, such as: (1) drag drum for draglines, which is usually smaller in diameter but wider for more cable capacity, (2) clamshell closing line lagging of approximately the same diameter as the main hoist for holding lines, but also wider for more cable capacity, (3) shovel crowd

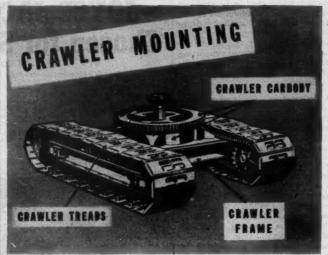
lagging which may be by chain or cable drive to crowd out the shovel dipper, (4) as an auxiliary drum for crane operations, such as a separate line over the jib extension or the pile hammer supporting line with pile-driver attachments or digging line drum for hoe attachments.

- Boom Hoist—Cable drum controlled by a clutch, brake and mechanical ratchet or self-locking worm for elevating or lowering the boom through an arc for supporting the mast or jib of a hoe.
- · Power-Boom Lowering This operation is provided usually by a separate clutch to lower the boom against the engine power at a lower speed than hoisting. This can be automatic or manually controlled. Power-boom lowering, especially of the automatic type, prevents a sudden accidental dropping of the boom. Controls which permit the release of the power-boom lowering device allow the rapid downward movement of the boom. The free gravity lowering of the boom is sometimes known as live-boom operation.
- · Shovel Retract-The shovel dipper must be retracted by a reversing clutch mechanism, which provides opposite motion to the crowding operation furnished by the secondary hoist drum. This retract operation can be provided by a separate clutch or may be powered by the boom-hoist clutch, because in shovel operation the boom seldom is raised or lowered. Thus for the greater portion of the time the boom hoist clutch can be shifted through a gear or jaw clutch arrangement to operate the shovel retract.
- Swing—The swinging of the machine is controlled by two clutches which rotate it in either direction. Swing is started with one clutch and is stopped by using the other reversing clutch. A brake is provided for the swing, but is used only for holding the machine from drifting during travel operations. A positive lock can also be used for locking the swing to take the place of the brake.

On larger machines, the swing brake may be used for actually stopping the swing on each cycle, which reduces the amount of heat generated in the swing clutches and saves some fuel, but the problem of synchronizing the brake operation with the clutch operation generally requires air operation of both the swing brake and







swing clutches. Because the swing clutches must slip for a considerable portion of the operating cycle in starting and stopping the swing, these clutches wear faster and generate more heat than the other clutches in the machine. In some larger machines where cost justifies it, electric eddy current clutches are used on the swing.

• Traction—The traction operation generally is powered through the swing clutches which, because of their reverse operation, can provide forward and reverse travel. A gear or jaw clutch mechanism is shifted so that the swing clutches can be connected either to the swing shaft or to the traction mechanism. Crawler-mounted machines would very seldom require swinging the machine at the same time that it is in traction and therefore the swing and traction operations can be powered from the same pair of clutches.

However, some machines have a separate pair of clutches for operating the traction and these machines are said to have independent traction. This may be desirable on rail-mounted machines or rubber-tired machines of the type having one engine. Truck cranes provide a separate engine and transmission for propelling the unit, and the excavator engine and swing clutches have no functioning in propelling the machine.

Steering—Steering may be considered a part of the travel operation, but it is controlled by a separate set of operating levers which,

on crawler machines, engage the jaw clutches in the crawler base to power either one or both crawlers to provide steering. In addition, these same control levers set brakes or mechanical pawls and ratchets to lock one or both crawlers to steer the machine or to prevent it from moving during digging operations. The friction brakes or pawls may be either automatic or manually controlled.

Rubber-tired cranes that are propelled by the excavator engine are usually steered by hydraulic power. Truck cranes, having separate engines, are steered from a separate truck cab. Remote control steering from the excavator operating cab can also be provided to permit short moves during truck crane or excavator operation without having a separate operator in the truck cab.

• Third Drum: A third hoisting drum in addition to the main and secondary hoists is often provided for pile-driver attachments for the snaking in of pile toward the machine or other pile-handling arrangements.

#### Mountings

The same revolving superstructure or turntable may usually be applied to any one of the three types of mountings in general use on this class of excavator.

• Crawler Mounting—The larger portion of excavators are crawler mounted because, once they are on the job, the excavators travel com
(Continued on page 86)



#### "Whatever Your Conveyor Belting Problem . . . Thermoid Has The Answer"

Whatever the job—whatever the nature of the materials to be handled—heavy or light, soft or abrasive, hot or cold, wet or dry, uniform or non-uniform n size—there is a Thermoid belt built to do the job at the lowest east per ton of material handled.

Thermoid belts are made with an extra margin of endurance. You will find they stay on the job long after ordinary belts fail. With Thermoid, you will have faver delays due to belt breakage or premature wear. Your Thermoid distributor will be glad to help you with your requirements.

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Drop us a line for your free copy of Book No. 3679. It is a handy reference guide, concise and complete. 16 pages of valuable charts, tables and graphs tell how to select the right conveyor or elevator belt for the materials to be handled...how to determine capacities, speeds, weights and number of plies.

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Carry it with one hand. One-ton model, with coil chain for standard lift of 8 ft., weighs only 38 lb.

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Use it year after year.
Long life is built in
... sealed in Housing is formed steel
plate—will not crack
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loads. Back plate is laminated for extra rigidity. Hoist mechanism has sealed-in lubricant.

#### Safe

Trust it to protect men and equipment. Tested at 100 percent overload. All load-holding parts are special alloy steel. This hoist actually has a five-to-one safety factor.

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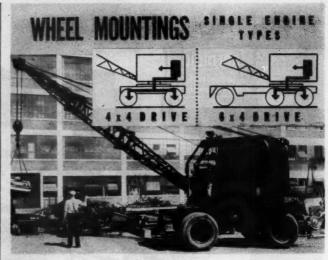
Service it yourself. The Challenger may be completely disassembled in minutes with simple tools. No lost travel time to and from the factory for repairs.

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paratively short distances in short intermittent moves. This mounting provides the greater amount of bearing area for work in soft ground and will withstand the greatest amount of abuse in traveling over rough ground.

The crawler consists of a crawler carbody which contains the propelling and steering mechanism and supports the roller path and swing gear. The carbody is supported by the crawler frame which, in turn, runs on the crawler treads or shoes by means of a group of rollers or wheels. Crawler machines travel at relatively low speeds of ½ to 2 mph, and some provide two speed ranges.

The machines usually are moved from job to job on rubber-tired trailers to save time and to reduce the wear on the crawler treads and pins. The low crawler speeds provide power to climb relatively steep grades and to pull the machine through soft ground.

Crawler mountings are available in various shoe widths and crawler lengths for each size of machine for different operating conditions. The over-all width of the crawlers can also be changed on some machines to provide greater stability for dragline and crane operations.

In general, the shorter and narrower crawlers and shoes are used for shovel operation which is more usually on firm ground. Long crawlers may interfere with the shovel dipper clean-up area and are somewhat harder to steer. The average bearing pressure provided by crawler treads is from 5 to 12 psi of bearing area. Excavator

treads and frames are designed to carry much heavier loads than tractor-type crawlers, but must be operated at much lower speeds and fewer total miles.

• Rubber-tired Mountings - Rubber-tired mountings permit higher speed with less wear and maintenance; they are especially useful where ground surfaces are firm. Single-engine, self-propelled units are controlled and powered from the excavator cab and require only one operator. They are usually limited to top speeds of 10 mph. but may go as high as 20. The speed limitation is due to steering and power. The most popular sizes of machines are in the 1/4- and 3/4-cu yd class. Additional lifting capacity can be obtained by the use of outriggers, which must be supported by jacks or blocking. These rubber-tired units can easily be moved from job to job without the use of transport trailers.

In the two-engine truck mounting, the revolving superstructure or turntable is mounted on a conventional truck for the smaller sizes or on a specially constructed truck for the larger sizes. These trucks have special frames without springs on the rear axles to provide adequate strength and stability. The cab is offset to one side to allow the front end attachments to be lowered over and forward of the engine for minimum overhead clearance.

Generally the truck engine has greater horsepower and higher operating speeds than the excavator engine. This provides higher

travel speeds than the singleengine self-propelled rubber-tired unit. The use of main transmissions together with auxiliary transmissions provides up to 12 forward speeds to maximums of 35 mph and two or three reverse speeds.

Truck crane travel and steering can be provided with attachments for the remote control of these operations from the excavator cab, so that a separate operator is sometimes not required during the digging operation. The greater cost of having two operators is offset by the advantage of high speed travel between jobs, especially in cities. Like the self-propelled units, the truck crane mountings are equipped with extendable outriggers which are used when lifting the heaviest loads because they provide considerable additional capacity.

Many states now limit the axle loads to 18,000 lb for single axles or 32,000 lb for a pair of dual axles. This would limit the size of the truck crane to about %-cu yd capacity and even then it is sometimes necessary to remove counterweights to get within these limits.

Ed. Note: The eleventh article in this series will appear in the November issue.

#### **Price Control Indefinite**

THERE WILL BE no immediate price controls upon construction. A price control regulation had been slated to become effective October 1, after a long series of conferences between officials of the Office of Price Stabilization and the 15-member Construction Industry Advisory Committee during the past summer.

Complexity of the construction industry has delayed drafting of regulations that are workable and the new date for price control to become effective has been set tentatively for November 1. But it is felt generally that approval of the regulations will be delayed beyond that date.

All contractors, large and small, are to be covered. Base period on which to start figuring costs would be the period from July 1, 1949 to June 24, 1950. Records must be kept for two years to show how prices were figured.



#### We were three-time losers!

(Based on Hartford Claims #12B17040, #12B17617 and #12B18309)

As is common in the building business, we handle payrolls on a cash basis. Recently we were caught in a crime wave that started when one of our men who was delivering the payroll at the site of a small job was jumped by two bandits who got away with \$1145! Then a few months later burglars cut through the steel wire fence around our main office, forced a door and emptied two safes of \$18,318 in payroll and other funds. Within three months the same thing happened again, and the yeggs got \$1188.

These losses, totaling \$20,651, would have crippled us if we hadn't had Hartford insurance. The Hartford reimbursed us fully, and also paid an additional \$718 to repair our damaged safes and premises.

The risk of handling large sums of cash in contracting operations makes proper insurance a must! Hartford's Broad Form Paymaster Insurance is ideal for this purpose. This protection covers both holdup and burglary and many other causes of losses as well.

Ask your Hartford agent or your insurance broker to explain its features, or send coupon for free descriptive literature. In more than 5000 communities you can locate your nearest Hartford agent by calling Western Union by number and asking "Operator 25".

HARTFORD FIRE INSURANCE COMPANY
HARTFORD ACCIDENT AND INDEMNITY COMPANY
HARTFORD LIVE STOCK INSURANCE COMPANY



#### HARTFORD ACCIDENT AND INDEMNITY COMPANY

Hartford 15, Connecticut
Send details on Hartford's Broad Form Paymaster Policy.

Name
Firm Name
Address
City
State

## S.J. Groves Tatis

At fill, Tournapyll spread its load in 13 to 20 seconds. Patented power-prepartioning differential and big 21.00 x 25 low-pressure tires assure plenty of traction in soft, loase 2 100.





R. G. LETOURNEAU, INC., Peoria, Illinois

HIGH SPEED, RUBBER-TIRED EXCAVATING . HAULING . LIFTING EQUIPMENT

## مدانات تالتوداري ستوانات

#### with electric-control C TOURNAPULLS

Unseasonably cold weather last November presented S. J. Groves & Sons Company with a serious problem on construction of a 200,000 cu. yd., 1.9-mile railroad siding near Hennepin, Illinois. This prominent Minneapolis, Minnesota, contractor had 6 veteran Super C Tournapulls and 2 tractor-drawn W Carryalls on the job . . . but, as material began freezing and anow falling, it became evident that these 8 rigs couldn't possibly finish moving all the dirt, on schedule, before mid-winter shut-down.

Rather than carry the work over, Groves decided to speed production with 4 new, electric-control Roadster-type C Tournapulls. The rigs were driven 70 miles from a completed highway contract at Erie, Illinois . . . put to work on ditching . . . and, despite continuous below-freezing weather, helped finish the work within a month . . . just beating January's sub-zero temperatures.

#### "C's" make 10 trips hourly on 3300' cycles . . . 5 trips on 9500' cycles

On 3300' round trip, the 4 Roadsters delivered frozen dirt, gravel and boulders at the combined rate of 40 loads per 50-minute hour. With pusher, each 13.5-yd. "C" picked up a load in about 1 minute . . . hauled 1500' to fill in 1 min. 50 sec. . . . spread in 16 seconds . . . and highballed 1800' back to cut in another 1 min, 54 sec. Total time

for this 3300' cycle averaged 5 minutes per Tournapull. Total round-trip time for longer 9500' cycles averaged 10 min. 40 sec. . . . with a combined output of 20 loads per 10-minute hour on this long haul.

#### "Roadsters top Super C's," says Supt.

"These C Roadsters were very satisfactory on both our long and short hauls," reports Job Supt. Chester Farrell ... "far better than the old Super C ... and I always thought the Super C's were good!"

#### Have 22 new LeTourneau rigs

In addition to their 4 C Roadsters in Illinois, Groves has more Roadsters and a rubber-tired Tournadozer on New Jersey Tumpike construction at Swedesboro . . . 6 "C"s" 2 D Roadster Tournapulls, and another Tournadozer or other jobs . . . making a total of 22 new-line LeTournesmachines in their equipment floet.

Like Groves, you'll find it pays well to modernise you equipment fleets with new electric-control Tournapull These up-to-date LeTourneau rigs will assure you lower net-cost-per-yard production in any kind of weather, i all types of materials, over both long and short hauls. Go all the facts from your LeTourneau Distributor.

Working with pusher in partially frozen gravel, each Tournapull picked up heeped load within 80. Laad time varied from 40 to 100 seconds, depending on how hard material was trozen.





Give a Dodge "Job-Rated" truck the rough treatment your job demands . . . and watch it perform with low-cost dependability year after year!

Plenty of thrifty power! For example, 2½-ton models have a rugged, powerful engine that's rated at 114 h.p. And, to assure even greater power with top economy, high-tonnage models (2½-ton and up) are offered with twin carburetion and exhaust system.

But that's not all! Back a Dodge into a tight spot—see how easily and sharply it turns, how easily the steering wheel turns! New worm-and-roller steering gears on many models are just one of many reasons why Dodge "Job-Rated" trucks are easier to handle.

Then consider advantages like the new moistureproof ignition system and new high-torque capacity starting motor—and you'll know why new Dodge "Job-Rated" trucks are more dependable, even in the worst weather.

You'll save in many ways with a truck that fits your construction operation—a Dodge "Job-Rated" truck. Talk it over with your friendly Dodge dealer soon!

#### "Job-Rated" TRUCKS DO THE MOST FOR YOU

#### How Dodge trucks are "Job-Rated" for the construction business

A Dodge "Job-Rated" truck is engineered at the factory to fit a specific job . . . save you money . . . last longer.

Every unit from engine to rear axle is "Job-Rated" - factory-engineered to haul a specific load over the roads you travel and at the speeds you require.

Every unit that SUPPORTS the load frame, axles, springs, wheels, tires, and others—is engineered right to provide the strength and capacity needed.

Every unit that MOVES the load-engine, clutch, transmission, propeller shaft, rear axle, and others-is engineered right to meet a particular operating condition.

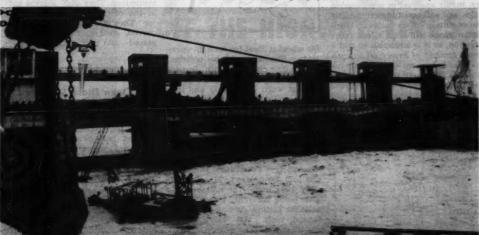
#### CONSTRUCTION 'ROUND THE WORLD...





GERMANY—Unusual rotary tower crane erects itself. Other features: Automatic counterbalancing: variable-height operator's cabin; maximum 41/2-ton, 115-ft lift; 66-ft boom reach.

KOREA—Ingenious Army Engineers mount crawler crame on section of pontoon bridge to clear wreckage from Han River before rebuilding highway span near Seoul.—Wide World phote



ITALY— New Hydre dam at Castel Giubileo near Rome holds back Tiber River water pumped to artificial lake. Its power plant will develop 70,000,000 kwh annually. Still in evidence here, at dam tailrace and spillway basin.—Wide World photo

## "Maintenance Shop...

A MONTHLY EQUIPMENT SERVICE AND REPAIR FEATURE

#### **Check the Engine Valves**

BY HOMER C. CAMPBELL

Service Manager H. W. Moore Equipment Co., Denver, Colo.

INTAKE AND EXHAUST VALVES, while among the smaller parts of an internal combustion engine, must operate under some of the most severe conditions. At full engine speed they open and close thousands of times per min, are exposed to high temperatures and normally operate at cherry red heat. At the same time they are subject to carbon deposits, corrosion and wear.

Yet, if the valves are not functioning properly, your engine has lost efficiency, as evidenced by hard starting, poor idling, misfiring and lack of power. Here's how to eliminate those troubles and restore original performance and efficiency to valves and seats.

Uniform compression of the proper number of pounds in all cylinders is important. Compression can be checked by hand cranking, motor analyzer or compression gage, and will assist in determining the condition of the valves. Worn piston rings also can affect compression, so it is advisable to add a small amount of heavy oil to each cylinder before making a compression test. This will assist in sealing the rings to give a more accurate test of the condition of valves and

seats. Any variation in compression chargeable to the valves should then be investigated and given proper service.

After the valves are removed from the head or block assembly, visual inspection readily will determine if they are usable for further service. If so, valve head and stem should be cleaned of any carbon deposits. A wire brush or buf-



fer wheel is ideal for such an operation. Stems should be polished with a fine abrasive cloth. Inspect each valve to see that the stems are not worn excessively and that heads are not burned, cracked or warped. Reface those valves that are re-usable.

Clean all valve springs. Test for proper spring tension, as recommended by the manufacturer. This should be in your Master Service Manual (see Construction Methods and Equipment, March 1951, page 100) under the make of engine being serviced. Check spring coils for pitting, rusting or for collapsed coils. All valve guides should be cleaned with a solvent using an expanding type wire brush. See that the port ends of guides are not burned, cracked or blistered from excessive heat.



Check inside diameter and, if damaged or not up to specifications, replace.

Remove all carbon deposits from the cylinder head or block. Inspect valve seats for cracks or loose seat inserts. All loose valve seat inserts must be replaced.

Inspect valve lever shaft and the bushings. If fit is not proper, replace. Valve bushings and ends must meet specs or be rebushed and reground or replaced. Worn valve levers cause valve stems to take side thrust thereby causing excessive wear to stems and guides.

The importance of valves and their proper functioning cannot be minimized. They play a great part in the efficient operation of your job. They affect the amount of dirt moved, steel erected, or concrete placed—and that is the payoff.

#### Clean Those Systems

MANUFACTURERS OF ENGINES for construction equipment recommend that cooling systems be cleaned before anti-freeze solutions are added for the winter months.

Many good cleaning solutions are on the market and some maintenance men have pet formulas of their own. But in any case, it is imperative that directions for use of cleaners and neutralizers be followed carefully. And anti-freeze solutions must not be mixed with cleaning or neutralizing compounds, to avoid the possibility of harmful chemical reactions.





It's a Fact... It Costs You Less to Run

## Firestone off-the-highway tires

I't costs you less to run Firestone Tires because their treads are extra tough to withstand cutting and abrasion, extra thick to deliver more miles of service. And, whether your work is in sharp rock, loose earth or slippery clay, Firestone Tires have treads especially designed to meet your particular requirements.

It costs you less to run Firestone Tires because their extra-strong Gum-Dipped rayon cord bodies are the next thing to trouble-free. Protected against impact by four special tread plies and guarded against cuts and snags by double-thick sidewalls, they run longer without interruption, remain in better condition for additional retreading.

Firestone Tires cost you no more to buy than other popular makes, cost a considerable amount less to run. Make a note now to buy your next tires from your nearby Firestone Headquarters.

Enjoy the Voice of Firestone on radio or television every Monday evening over NBC

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## Pipe for the future with CARLON

#### \* The first neal pipe that is plastic!

For long range economy plus ease of handling and installation, specify CARLON plastic pipe. This remarkable new piping medium brings the inherent advantages of plastics to the field of fluid, vapor and gas transmission. Guaranteed against rot, rust and electrolytic corrosion, it has a troublefree service life many times longer than ordinary pipe.

CARLON pipe has been field-tested and proved superior for drinking water systems, sludge removal, drainage and irrigation systems, ventilating and cooling lines, hydraulic sluicing, and intake and exhaust piping.

Furnished in long, easy-to-handle lengths, CARLON requires a minimum number of fittings, and it can be installed rapidly without special tools or materials handling equipment. A complete line of standard I.P.T. plastic fittings is available for joining lengths of CARLON or for connecting this new pipe to previously installed metallic systems.

At present, raw material shortages are limiting the production of certain types of CARLON pipe. Every effort is being made to overcome this problem and to meet the need for CARLON . . . the first real pipe that is plastic.

242-CP

#### CARLON PRODUCTS CORPORATION

In Canada: MICRO PLASTICS, Ltd., Acton, Ont.
10154 Meech Avenue Cleveland 5, Ohio



CONCRETE IS PUMPED from ground direct to forms for roof slabs of 11-story Twin Oaks Apartments in Kansas City. Whole job of 17,000 cu yd spread over 456,000 sq ft of floor slabs, is pumped through

lines up to 1,110 ft long with maximum rise of 110 ft. For most part concrete is delivered from pipe to forms by chutes. Note pipe screed guides.

#### Concrete Pumped 110 Ft in Air For Kansas City Apartments

BUGGIES LOADED from portable hopper transport concrete to odd floor areas that cannot be reached readily by direct pipeline.

By TIP BROWN, Kansus City, Mo.

IN BUILDING twin 11-story apartment houses on a 14-acre site in Kansas City, S. Patti Construction Co. successfully placed all 17,000 cu yd of concrete for the floors and columns with a double Rex Pumpcrete rig from one central plant set-up. Maximum vertical lift of concrete was 110 ft, longest pipeline run, including this lift, was 1,100 ft from pump to forms.

The project, recently completed and known as Twin Oaks Apartment, consists of two 11-story identical buildings housing 618 families. The 24 floor slabs aggregate 456,000 sq ft. Patti was anxious to eliminate buggy runways over such an expanse of floor, and also wanted to free otherwise busy tower material hoists from the job of handling concrete. Pumping the concrete was an ideal solution here.

Because all local ready-mixed plants were committed to other deliveries during the period when Twin Oaks would need 450 cu yd daily, Patti decided to set up his own central mixing plant on the (Continued on page 97)

P&H JRUCK

CRANES

## GREATER SUBILITY

#### around the full 360!

Stability means work-ability! P&H gives you more of it — around the entire 360° of operation. Size for size, on this basis, no P&H Truck Crane has ever been outlifted.

Here's modern hydraulic control at its best—fast, smooth, responsive . . . lets you place heavy loads accurately, safely — handle light loads with maximum speed.

Dual power gives you brisk travel speeds — ample working power for every job. This is not a one-engine compromise. Available with remote control.

Ask your dealer about a P&H before you buy another truck crane.

PEH

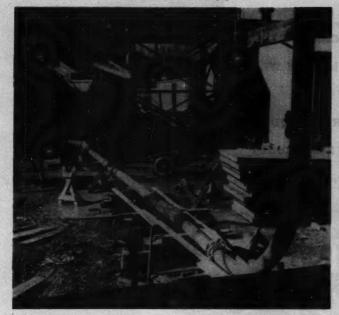
TRUCK CRANES

4494 West National Ages.

HARNISCHFEGER

#### See your PaH Dealer

P&H Excavators and Truck Cranes are more easily converted for the various types of service shown below — with hoist and digging drums on one shaft, the need for auxiliary shafts and gearing is eliminated. You also have a choice of gas, Diesel or electric power. Ask for literature on the size you need.





CONCRETE PUMP is directly under twin mixers of central plant (above) at job. Discharge pipe makes short run on ground and then turns up along outside of building as riser. Note section of rubber hose inserted in ground line to dampen vibration, from pump

in riser. Riser line (right) is fastened by U-bolts to brackets clamped to outside columns. Vertical pipe is extended upward as each floor is powed, finally rising 110 ft to reach reof. Only one pipe break was experienced during entire operation; was repaired in 15 min.

job. The Pumpcrete was placed directly under the mixer platform. Sacked cement was hauled 65 bags at a time from a rail siding 3½ mi from the site to a 2-carload warehouse on the job. Sand and crushed rock were delivered as needed during pours without storage.

The usual 7-in. discharge line was used throughout the concrete distribution system. After a short run on the ground, the pipe became a riser following up the outside of the building, attached to timber brackets clamped to an outside column. Wherever possible, distribution lines were carried across the floor forms to final direct discharge by short chutes.

No trouble was experienced in pumping concrete to any point desired, even up to the 1,100-ft maximum length of line, with the Rex 190 double Pumpcrete. Air-entraining admixture added at the mixre helped by keeping the mix plastic. Cement grout was pumped through the line at start of each pour to lubricate the pipe. Only one pipe break was experienced in the entire operation, and that delayed concreting only 15 min while a new pipe section was installed.

#### Men in Charge

Salvadore Patti, vice-president of S. Patti Construction Co., Inc., Kansas City, directed the job for his firm. Voskamp & Sleak, Kansas City, were architects, and S. J. Callahan, Kansas City, was structural engineer for the project.



ELABORATE CONCRETE PLANT with twin misers was set up on job to mix 17,000 cu yd of concrete because local ready-mixed plants were unable to guarantee 450-yd daily delivery.

ANY equipment parts that are subject to rough impact or severe abrasion are likely applications for Wear-Arc hard facing. Write for Bulletin 5651 for application information and welding procedures.

Alloy Rods SS Co.

ALLOY RODS COMPANY

No Finer Electrodes Made YORK, PENNSYLVANIA.

Anywhere

AR-5



#### says Mr. Arnold Guenther, owner of A. GUENTHER and SONS, Incorporated, West Allis, Wisconsin

This firm specializes in the construction of fine churches. Mr. Guenther chooses SKIL Saws exclusively for this exacting work. He says, "I buy only SKIL Saws because church construction, with its ornamental design, frequently calls for compound cuts. I've found that only with a SKIL Saw, where you can see the blade and the sawing guide while standing behind the saw in a comfortable position, can you do accurate work."

Larry Persch of the Guenther firm says, "With a SKIL Saw I can see what I'm doing." Persch is making a cut to fit this 2 x 4 over duct work in a window stool. Persch who has been a carpenter and a SKIL Saw user for 15 years said further, "Over 450,000 board feet of lumber have gone into this church and we've used only three SKIL Saws on this job. The adjustments are easy to make and we know that with our SKIL Saws we can make end cuts on roof boards with a 75% saving in time."



avy duty 814" saw, built to withstand nt 0" to 2%" tical depth of cut; 0° to 45° bevel adjustment; 2½" depth of cut at 45°. Free speed of blade: 3000 r.p.m. Overall length: 18". Weight: 1734 por



SKIL Products are made only by SKILSAW, INC., 5033 Elston Avenue, Chicago 30, Illinois SKILSAW Factory Branches in Principal Cities • In Canada: 3601 Dundas Street West, Toronto 9, Ontario

"Low level bidding" gets the job maintains profit

Successful drainage bids are ones that get the job and retain adequate profit. That's why so many experienced contractors are practicing "low level bidding" with Armco Corrugated Metal Pipe. They have found the cost of installing short, sectional pipe

requires higher bids to maintain profits.

Figured on an installed basis Armco Pipe saves money in many ways. Flexible, corrugated metal design assures ample strength without excess weight. This means low handling and hauling costs. Job costs are low because unskilled labor quickly and easily makes the installation. There is no breakage, no curing, no waste, no delay.

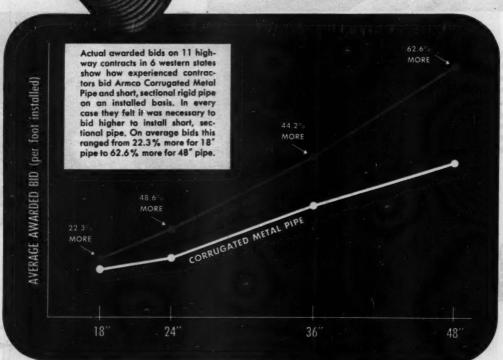
Individual sections of standard Armeo Corrugated Pipe and PIPE-ARCH are supplied in any length that can be hauled and handled. No large and expensive equipment is required for installation. A few men with a rope sling or a small A-frame can handle the largest structure. Connections are made with simple band couplers. Where end finishing is needed, prefabricated Armeo End Sections are simple to install.

Use Armco Drainage Products on highways, railways, airports and wherever else you need economical, easy-to-install drainage structures. Armeo Drainage & Metal Products, Inc., 1571 Curtis Street, Middletown, Ohio.

Export: The Armco International Corporation

### CORRUGATED





## Not, PLEASE, In the Name of Fairness

Our national Office of Economic Stabilization has adopted a policy of gearing wages to the cost of living. We are told that "escalator clauses," which provide that rates of pay shall be adjusted to take account of changes in the cost of living, will be generally approved.

If the adoption of this policy had been announced as a frank concession to political expediency, it would have been quite understandable. There may very well be votes, lots of them, in a policy which purports to protect the income of a large group against loss through the price inflation caused by the defense program.

A case might even have been made for a policy of approving escalator clauses on grounds of production expediency. The leaders of some three million organized workers now covered by such clauses have indicated that they would fight to the limit to keep them and thus maintain "real wages," that is, wages measured by their purchasing power. The leaders of other organized groups have indicated they would fight to get the

benefit of such clauses. Denial of them might mean serious strikes.

erough additional races to aller the

#### Justified "in Fairness"

However, the policy of approving escalator clauses was not based on these relatively low grounds of expediency. It was justified on high moral grounds, on grounds of "fairness." In the words of the President's Council of Economic Advisers, "maintenance of real wages during inflation cannot in fairness be disallowed."

That proposition is false.

It would be truthful to say, "maintenance of real wages during inflation cannot in fairness be allowed."

The truth of the corrected proposition becomes evident immediately when you take a look at the basic nature of the inflationary problem created by defense mobilization.

We are devoting a large share of our national production to defense. The share is now scheduled to hit about 20% in 1952.

Since we are not able to increase our total production fast enough to meet defense needs

in addition to civilian needs, that means a cut in the supply of goods and services that is available for civilian consumption. But the money paid out for the production of defense materials is added to that which is available to buy civilian goods.

Thus, more money is put into the hands of the people to buy less goods. So prices go up. That is inflation.

If one group of people then is granted enough additional money to offset the price increases — and that is the purpose of an escalator clause — and thus can continue to buy as much as they have been buying right along, less goods will be left for other consumers who are not getting this advantage. That is palpably an unfair distribution of the sacrifices necessitated by defense mobilization. In fairness, therefore, maintenance of real wages in inflation cannot be allowed.

Organized workers were not the first, of course, to get the benefit of an automatic adjustment to take account of the increased cost of living. The farmers got theirs first. The price parity formula is, in essence, an escalator clause. The federal government underwrites increases in the prices of the things farmers sell in order to match increases in the prices of the things they buy.

#### Crucifying the Helpless

As matters stand, two groups are without benefit of escalator clauses. One group is composed of manufacturing firms. While they have not been nearly as successful as the misleading reports of "record-breaking profits" suggest, they have been able to look after themselves fairly well—thus far.

But one group is completely without protection. It is that numerically large but politically unorganized mass of people — many of them old and relatively helpless—who are trying to live on pensions, annuities and other fixed incomes derived from their savings. They are at the end of the line when the increased costs of inflation are passed along. They have no one to whom they can pass the buck. They are being progressively pauperized by the continuing inflation caused by progressive boosting of costs and hence prices.

With the present line-up of pressure groups in Washington, protection for the principal victims of inflation—those who have saved for a rainy day only to find inflation has blown away the roof—is obviously an extremely difficult business. But to have even temporary insulation against inflation granted to powerful groups in the name of fairness should be offensive to the nostrils of a nation that presumes to assert the moral leadership of the Western World.

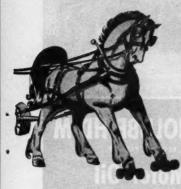
The only really fair way to handle inflation is to prevent it. But once it is under way, fairness demands that the burdens be as evenly distributed as practicable.

An escalator clause—or a farm parity provision—is explicitly a device to enable the group favored by it to escape the burden of inflation. Whatever concessions we feel we must make to political pressures or production expediency, let us at least be honest enough not to invoke "fairness" as justification for so arbitrary a discrimination in the distribution of the defense burden.

McGraw-Hill Publishing Co., Inc.

## No matter how you say it It Comes Out the Same Last Year-This Year-Next Year

in 1940 we said



A motor grader without power on the front wheels is like a horse with roller skates on his front feet.

complete line of motor our for every

in 1945 we said



It's not in the cards for a grader with rear drive to equal the performance of one with All-Wheel Drive. in 1950 we said



Don't handlcap your horsepower! No grader with a dead front end can possibly deliver maximum power-atthe-blade.

No two ways about it! Austin-Western's exclusive All-Wheel Drive goes more places...does more things...moves more material, farther and faster.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.
Subsidiary of Baldwin-Lime-Hamilton Corporation





COLD WEATHER, HEAVY LOADS, TOUGH ROADS . . .

#### Service that calls for New better

STANOLUBE HD-M

Motor Oil

Sub-zero weather is working weather for Goodman Lumber Company, Goodman, Wisconsin, where a fleet of eight trucks and 10 diesel tractors must keep going to make the most of the logging season. Regardless of the weather, logs must be skidded to the trucks, loaded, and delivered to the mill.

Because of cold weather, heavy loads, and tough roads, Goodman Lumber Company equipment requires the extra protection of a superior heavy-duty motor oil. That's why STANOLUBE HD-M is the oil for the job.

Despite severe operating conditions, the improved detergent-dispersant quality and the greater oxidation stability of STANOLUBE HD-M help keep engines free of varnish-like deposits. Cleaner engines mean less wear, longer life, and less maintenance. For Goodman Lumber Company, this means more logs delivered to the mill.

A Standard Oil lubrication specialist can help you put STANOLUBE HD-M Motor Oil to work in your own

heavy-duty operation. Call the Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

#### A complete line of motor oils for every heavy-duty service need

STANOLUBE HD-M is recommended for all internal combustion engines. It meets U. S. Army specification MIL-0-2104. It provides excellent cleanliness, low wear rate, and low oil consumption under severe operating conditions. All SAE grades.

STANOLUBE S-1 is recommended for automotive, diesel, or gasoline engines where other heavy-duty oils cannot control deposits caused by operational severity or adverse fuel quality. It meets requirements of MIL-0-2104 and requirements for "series 1" type oils as well. All SAE grades.

STANOLUBE HLA is recommended for supercharged diesel engines and other engines that operate under the most adverse conditions. It meets requirements of MIL-0-2104 and requirements of "series 2" type oils. SAE 10 and SAE 30 grades.

STANDARD OIL COMPANY (Indiana)



#### **Legal Decisions Concerning Construction**

#### Could The Bank Collect?

THE LOCAL CONTRACTOR had received a check for \$3,000 from an out-of-town creditor, strolled into the Popular Bank, endorsed the check, filled out a deposit slip. and pushed it through the teller's window. At that time the contractor's credit balance was \$13.13, and on the deposit slip was the following notation:

"Items not payable locally are taken at depositor's risk and credited subject to actual payment. This bank, as agent for depositor, will forward such items, either direct to drawee, or to another bank in the same city, or indirectly through correspondents in other

cities."

Neither at that time, nor later, was there any arrangement between the contractor and the bank that the proceeds of the check were to be credited to him before actual payment. That same day the bank permitted him to withdraw the amount of the check before payment, then the check was refused by the bank in a near-by town on which it was drawn, and the Popular Bank "came back" on the contractor.

"You sue the customer, and I'll stand behind you," the contractor agreed, and the bank sued in the Mississippi Courts.

"You're not a holder for value." the customer argued.

"When we let him check out the proceeds we certainly put up value," the bank contended.

"But, you did so without any arrangement with him to that affect, and it was contrary to the statement on your own deposit slip," the customer contended.

The Supreme Court of Mississippi, however, in Bank of Gulfport vs Smith, 96 Southern Reporter, 785, ruled in favor of the bank, on the ground that while the bank originally received the check for collection, but subsequent thereto permitted the full amount to be withdrawn by the contractor. it waived the right to hold the check only for collection and became a holder for value.

"After the deposit of a check and the giving to the depositor of conditional credit thereof, the depositor, by presenting his own check for the amount of his balance, including such conditional

credit, thus established beyond argument his desire and request that the theretofore existing condition in credit be waived or modified," said the Court.

#### A Reasonable Time

"YOU OWE US \$1,000 for cement that's past due," the salesman explained.

"Here's a check on my local bank in payment, and there's money in the bank to pay it, but you've got to cash it at once, and if you hold it, you hold it at your own risk," the contractor ex-

"Hand over your check," the salesman suggested.

"But I want a receipt before

"You can't expect a receipt until the check's cashed." the salesman demurred.

"If I don't get a receipt, you don't get the check." The salesman wrote the required receipt, and accepted the check.

This conversation took place on a certain Saturday afternoon, and the salesman immediately forwarded the check by mail to the head office of his company in another state, and requested that the check be endorsed and returned to the salesman, so that he could present it for payment at the local bank on which it was

Sunday was a quiet day, Monday and Tuesday the local bank was open as usual, paying checks, and transacting ordinary banking business, but when the doors closed Tuesday afternoon they closed for good, and the State Banking Department took charge.

Wednesday morning the salesman received the check from the head office, took it to the bank. and found a sign in the window which said "nothing doing" or words to the same effect, whereupon he went to the contractor. demanded payment, and received

"I warned you that the check must be cashed at once, you didn't present it within a reasonable time, and that relieves me," the contractor contended, and the Supreme Court of Oklahoma in Sinclair Refining Co. vs Keith reported in 221 Pacific Reporter,







Preferred power for portable conveyors, too — the world's most widely used single-cylinder 4-cycle, air-cooled gasoline engines on machines and tools for industry, construction, railroads, and on appliances and equipment for farm and home.

organization, factory trained and supervised, near you—
with a stock of genuine Briggs & Stratton
parts for all models. The Briggs & Stratton service organization network is the largest of its kind in the world.
Briggs & Stratton Corporation, Milwaukee 1, Wis., U. S. A.

In the automotive field Briggs & Stratton is the recognized leader and world's largest producer of locks, keys and related equipment. 1003, decided that he was right.

"Where a check is drawn and made payable to a payee residing in a place distant from the place of payment, the rule of law allowing a reasonable time for the passage of the check by United States mail to and from the residence of the payee has no application, where the payee accepts the check with notice that any delay in presentment of the check is dangerous," said the Court.

#### The Disputed Demand

"AND THE SAID contractor agrees to quit and deliver up possession of the leased building at the end of said term in as good condition as when leased, reasonable wear and tear and damage by the elements excepted," the contractor's lease provided.

"And it is further agreed that any permanent improvements made to said premises by said contractor shall be paid for by the landlord, at the actual amount thereof plus 6%.

The lease in question expired on a certain Saturday, the contractor's landlord called on Monday morning, and found him with his feet on the fender.

"What does this mean? You were supposed to be out of here on Saturday," the landlord demanded.

"I don't have to move out until you've made a demand for possession," the contractor stated.

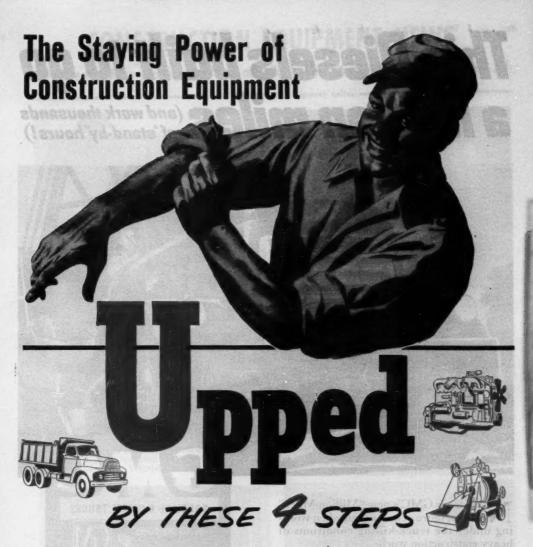
"I don't have to make a demand. The lease says you're to deliver up possession at the end of the term."

"I admit that is the rule in ordinary cases," the contractor argued, "but it does not apply to a case like this where you're bound to pay for improvements. Under our lease you have to tender the price of the improvements and demand possession before you can terminate the lease."

This is a lease-hold situation that may arise any day; Missouri and New York Courts have ruled in favor of the landlord.



SPIKE SEZ: "Both of you guys put on those goggles so they will do some good! And hold that bull-point with tongs!"



1st step: Examine Cities Service lubricants for out-andout quality through your purchasing experts or test facilities...or from service records established by critical users.

2nd step: Look into the completeness of the Cities Service line as an aid to simplified ordering and prompt, steady supply ... backed by the extensive facilities and intensive cooperation to keep you out of any lubrication "jam."

3rd step: Review the construction field's most effective

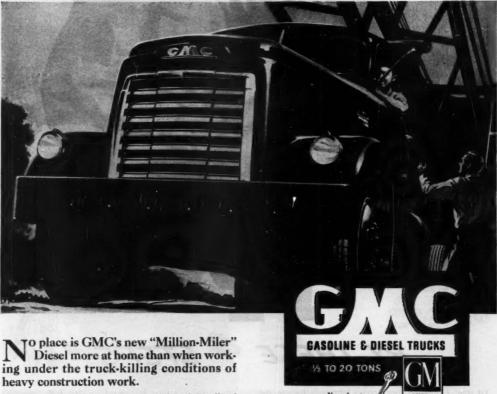
lubrication practices by consulting that fully informed specialist, the Cities Service Lubrication Engineer.

4th step: Ask for facts about the high character of the Cities Service line and the practical technical assistance now upping the staying power of construction equipment for many of industry's "hardest drivers." Write CITIES SERVICE OIL COMPANY, Rm. 161, Sixty Wall Tower, New York City 5. Or call the Cities Service office nearest you.

CITIES ( SERVICE



# This Diesel's built to go a million miles (and work thousands of stand-by hours!)



For here is where the sustained "go" of GMC's 150- and 225-BHP power plants are really called upon to keep socking home the heft to the pay load.

But the big factor is the patient power that purrs under the hood of this "Jimmy" Diesel - thousands of hours of stand-by power, idling - ready to spring into driving motion the moment the foreman signals "take her away!"

With new automatic Fuel Modulation that takes the lugging and the sludging out of low-speed Diesel operation - new freer-

breathing, carbon-free scavenging action, husky 80 c.c. unit injection of fuel and a new high governed speed of 2100 r.p.m. - no wonder it's the ruggedest, workingest. longest-lasting engine ever yoked to a real

greater hauling profits

Why not let your GMC dealer give you all the facts on this fleet of new Diesel "Million-Milers." Figure out the power savings you'll get-both in terms of miles and hours of real. long-time, rough-and-tumble work!

GMC Truck & Coach Division of General Motors

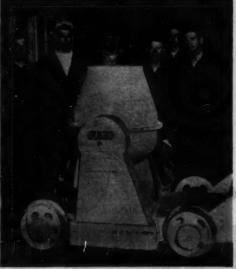
### **CONSTRUCTION EQUIPMENT NEWS**

A Preview of New Machinery, Tools and Equipment That Will Help You on the Job

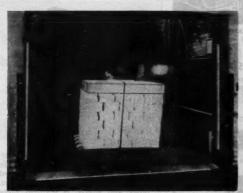
JAMES M. CONNOLLY, Equipment Editor of



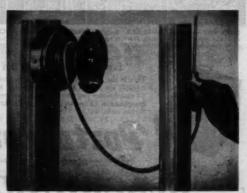
ELECTRIC COMPACTOR HAS ONE MOVING PART Its heavy-duty vibratory motor shaft is the only moving part on this new compactor which is ideal for compaction of asphalt, water-bound macadam and granular soil bases. Handling most granular materials in 12-in. lifts, it gets maximum density quite easily. A 2.5 kva power unit mounts on a trailer, features a hydraulic jack for lifting and lowering. In use, unit moves ahead 25 ft/min.—Jackson Vibrators Inc., Ludington, Mich.



ELECTRIC DRIVE MIXER RIDES THE RAILS Here's a case where a contractor and his distributor—both of Farmington, W. Va.—dreamed up a new rig now on the market, called a Train-Mixer. The axle mounting on the REX 3½S Tilter was replaced with 42-in-gage mine car wheels; then mine locomotive couplings were attached. The contractor says it will handle all types of tunnel jobs.—Chain Belt Cempany, 1600 W. Bruce St., Milwaukee 4, Wis.



ELEVATOR SILLS PROVIDE EXTRA SAFETY This line of metal sills can accommodate any type freight elevator to protect car, nosings and floor edges. When sill is down, elevator is locked in place; when up, it prevents wheeled carts from rolling too close to the edge.—Alexander Sill Company, 970 Milwaukee Ave., Chicago 22, Ill.



HYDROLEVEL TRANSFERS GRADE MARKS ON JOB Working on the simple principle that water seeks its own level, this leveling instrument can stand or hang; it makes possible the transfer of grades around obstructions, over or under walls, etc., unaffected by vibrations on the job.—Hydrolevel, 81 De Soto Ave., Ocean Springs, Miss.

## Man-Alive! this Hydraulic Jack

## COES EVERYTHING



It's a "Porto-Power" . . not an ordinary jack! And "Porto-Power" wipes out scores of traditional construction and maintenance methods which, by comparison, are downright money-wasting! Every-day savings are dramatic - so you'll want to get the full facts and order "Porto-Power" immediately! See leading supply houses or write Blackhawk today.





PUSH OVER ANY PULL PULLEYS, gears, STRAIGHTEN parts.

SPAN — Eliminate wheels. No hammer-dangerous blocking up. ing or prying. Apply force exactly where you want it!







BEND PIPE and con-duit the easy, profit-able, fast way.









#### **Every contractor needs this S-79 KIT**

This is the basic "Porto-Power" assortment for every contractor. Its 20-ton remotely-controlled hydraulic jack and 12 attachments pay for themselves on one or a few routine assignments. (You can get "Porto-Power" in 2, 4, 7, 10 and

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Name	Title	***************************************

Firm

AIR PRESSURIZED FIRE EXTIN-GUISHER — This new Alfco Pres-surized Fire Gun is said to be the newest and most effective 1-qt fire extinguisher for class B and C fires. Just pick it up, aim it and pull the trigger. It discharges vaporizing liquid for extinguishing both flammable liquid and electrical type fires. -American-LaFrance-Foamite Corp., Elmira, N. Y.

MOWER ATTACHMENT ON LOADER-Among the features of the new 3-B Shoveloader is the design which permits installation and operation of a Case VAI-5 mower attachment without interference with the machine itself or with its scoop. The bucket also has a parallelogram mechanism which automatically keeps it level while raising or lowering. Alternate, interchangeable attachments are %-yd material bucket, 1/2-yd loose material bucket, 1/4- or 1-yd coal or snow bucket, bulldozer. lifting crane, fork lift or motor-driven sweeper.—Lull Manufacturing Co., 3612 E. 44th St., Minneapolis 6, Minn.

PLASTIC PAINT—Recently officials had a car strike a guard rail in Connecticut's Wilbur Cross Parkway during safety tests conducted by state police and highway department officials. An interesting by-product of the tests was the resistance of the guard rails' protective plastic paint, Corrosite, which showed only a few scratches and scrapes after crashes at different angles and speeds. This Corrosite seals and protects concrete surfaces, and its elastic quality is said to withstand expansion and contraction, to prevent chipping and to resist alkalis in the concrete, as well as salts and chlorides.—Corrosite Corp., Chrysler Building, New York 17.



PIPEMARKING TOOL - Numbering tool uses ordinary flat-surface marking type for stamping convexed surfaces, such as rods, bars, tubes, pipes, and shafts. A segment piece blank placed between each piece of type provides the necessary curva-ture. Holders are available for handling 4, 6, 8, and 10-digit numbers. Type sizes range in 16ths and 32nds from 1/16 to ¼ in.—The Acromark Co., 500 Morrell St., Elizabeth 4, N. J.

## TAKES HEAVY IMPACT

LIKE A POOL TAKES A PEBBLE



## Homocord CONVEYOR BELT

"We seldom see a cut or gouge in Homocord Conveyor Belts. And they consistently outlast other belts on heavy-duty installations."

There are engineering reasons for this typical user report. The extra body-cushion built into Homocord dissipates the shock of sharp impact from large lumps of coal, ore and rock... assures long life. Natural troughing and flexibility add up to more ton-miles of materials carried.

Full description of these and other advantages are described in Bulletin 6906. Let us send you a copy. You get the same long-life engineering in R/M hose, V-belts and flat belting. Ask your R/M representative.

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## RAYBESTOS-MANHATTAN, INC.

Manufacturers of Mechanical Rubber Products • Rubber Covered Equipment • Radiator Hose • Fan Belts • Brake Linings • Brake Blocks • Clutch Facings • Packings • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balts





THE TALBERT CONSTRUCTION EQUIPMENT CO., of Lyons, Illinois manufactures a complete line of low-bed trailers and dump semi-trailers

THE TALBERT-WAY IS THE EASY WAY

SHELF MODEL BATTERY CHARGER—This motor-generator type battery charger can be set up on a shelf measuring only 6%x8% in. It's about the size of tank-type vacuum cleaner and weighs 190 lb. It's fully automatic, according to GE engineers, who say that all that's necessary is to plug it in a wall socket and set the timer; automatic controls do the rest. Especially useful for charging batteries in driver-lead and small driver-ride industrial trucks, it accommodates lead-acid batteries of 6-19 cells and nickel-iron alkaline batteries of 10-30 cells. The single-circuit equipment operates on 3-phase, 60-cycle ac power and has generator and motor overload pro-tectors. — General Electric Co., Schenectady, N. Y.



COMBINATION TOOL for filing and setting saw teeth - Use the clamping device on this tool to fasten it into a vertical position; then clamp in your circular saw blade with dia anywhere between 6 and 18 in. There's a special tension bar which assures proper tension while you're filing. When it's sharp enough to suit you, don't remove the blade-instead unclamp the tool from the bench and lay it down. Push the blade to the other end where a tooth will slide in between a hammer and anvil pre-set to an angle of 15 deg for setting the sharpened teeth. When that's done, put the tool away in any standard size tool box. That's all there is to it. The two-in-one tool known as SHARP-SET accommodates all standard size and shape arbors and, because of its compactness and portability invites frequent sharpenings and settings.—Clark & Sawyer Inc., 600 Mateo St., Los Angeles 21, Calif.



### TRY THESE HARD-FACING ALLOYS BY VIELLE Made to stretch working life of cutting, drilling, and crushing equipment wherever abrasion, impact, corrosion and heat are encountered. THEY ARE PASTER AND SMOOTHER!

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VICTOR	MANY	Abrasian and severe impact	Treater relien, dredge pump impellion, backet lige and treat, real analysis, steel mill webblins			
VICTOR	TUBE	le nollant	Specifier track, desdige cetter blacker, products couper, oil bold track, disabor track			
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VICTOR	1 005 1	Correction, Security and otherwises	Spr-tooth, carbon surapors, otro guidos, realer como			
VICTOR		Red boot, impact, correctes and obvectors	Stating, farming and rimming disc; come, but pumber, pump shalls			
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Available in a full range of sizes for a acetylene and electric AC and DC applicat Try VICTOR hard-facing rods on your of hy Ve LOA materiating ross on your job NOW. Save money two ways; (a) in tin ... application is faster and smoother; at (b) by stretching the life of equipment us under severe operating conditions. Order supply from your dealer TODAY.

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We want to know more about	these items:
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Welding and cutting units.	Pertable flame cutting machines.
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# Grive PAYLOADER Traction-Speed-Mobility

You get more of everything with this rubber-footed tractor-shovel. With its combination of 4-wheel drive and large pneumatic tires the Model HM PAYLOADER gives you fast-action traction on all kinds of footing — on sand, stone, snow, clay or mud. It gives you crawler-like traction at far less maintenance expense, PLUS speed when you want it and the ability to work on pavements and travel over streets and highways at 16 M.P.H.

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WRITE for literature of any size PAYLOADER the 1½ yard Model HM; the 1½ yard HY the ¼ yard HE; the ½ yard HE; the 12 cu. ft HA. There is no obligation.

You also get easy operation and maneuvering speed thanks to power-boosted steering and full reversing transmission with 4 speeds reverse as well as forward. Once you see one in action you'll know why hundreds of contractors as well as road and street officials are highly satisfied users of Model HM PAYLOADERS. Full information on this and other sizes of PAYLOADERS is yours for the asking. The Frank G. Hough Co., 706 Sunnyside Avenue, Libertyville, Illinois.







"Couple of years ago, the boss asked me to start checking our wire rope costs. He wanted a little system of records that would tell us what each rope was doing, and how much work we were actually getting from it. Figured we could learn the brand that would last the longest—and cost the least—on our type of work.

"So I started keeping track. In our case, the jobs involving rope boiled down to a matter of tonnages moved. Wasn't at all hard to record what each rope accounted for in its lifetime. When I'd been checking long enough for the figures to have some meaning, I showed 'em to the boss. By then I could tell which make of rope was doing the best job for us, costwise

and every way. The figures really opened our eyes!"

These men weren't the first to learn the value of checking rope performance. Many users of Bethlehem wire rope follow the practice regularly. We're always glad to see it, for it enables actual comparisons between brands . . . and we know that in any such comparisons, Bethlehem rope will stand out from the crowd.

Here's a fair suggestion: over a period of time, stack the Bethlehem product against any other brands of your choice. Keep tabs on them all, and at intervals study your figures. Our guess is, those records of yours will prove beyond question the solid economy—the long-term economy—of Bethlehem wire rope.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bathlehem products are sold by Bethlehem Pacific Coast Steel Corporation Export Distributor: Bethlehem Steel Export Corporation



LET YOUR RECORDS
TELL YOU!





PAINT SEALS OUT MOISTURE—Concrete and cinder-block walls can be sealed against penetrating dampness with a new paint based on Bakelite Co's styrene emulsion. Applied by spraying, brushing or rolling in two coats, the paint is said to close up all moisture-admitting pores in the walls, and to dry to a lasting finish. It's manufactured by Marvelite Paint Co., 1237 Light St., Baltimere 39, Md. and available in qt, gal, 5-gal and 55-gal containers. Information is available from the manufacturer or Bakelite Co., 122 E. 42nd St., New York 17, N. Y.



PNEUMATIC TOOL LINE LUBRI-CATOR-Here's a good way to circumvent the forgetful pneumatic tool operator and add to your maintenance efficiency. This lubricator, when placed on an air line will deliver "oiled air" to the working parts of the tool, says its manufacturer. Oil flow can be adjusted, and added under line pressure if desired. A pressure-proof window tells you at all times how much oil is in the lubricator. Said to cause no perceptible drag, its shape allows it to be pulled around corners without catching. No. 2 model shown above weighs 32 oz., is 7x31/2 in. Three other sizes range from 4½ to 10 in. in over-all length and from 1/6 to a full pt capacity.—The Rucker Co., 4228 Hollis St., Oakland, Cal.

## 4 days work in 3



75 ft. 125 ft. 185 ft. 250 ft.

#### JAEGER "Air-Plus" COMPRESSORS

deliver 15% to 25% more 100 lb. air at lowest cost per cubic foot of any compressors on the market, to run tools at their full efficiency.

THE JAEGER MACHINE COMPANY 800 Dublin Avenue

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#### BELT FASTENERS and RIP PLATES



FOR HEAVY
CONVEYOR
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ELEVATOR
BELTS OF
ANY WIDTH

- ★ FLEXCO Fasteners make tight butt joints of great strength and durability.
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- Distribute pull or tension uniformly.
- ★ Made of Steel, "Monel," "Everdur." Also "Promal" top plates.
- ★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.



Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-100

FLEXIBLE STEEL LACING CO., 4699 Lexington St., Chicago 44, 'lik.

### COMMEN BUTLER ENGINEER

October, 1951

#### Old Soldiers Don't Even **Fade Away**

The Story of a 6-star General: He was born in Wisconsin just before World War II at the Butler Bin plant. I was the obstetrical-engineer and I never saw a healthier youngster. Ready for military service at birth, he was trained—(or airentrained) - pouring concrete for the Hoosier Ordnance Plant (shells). Later he was promoted (shells and powder) to pouring concrete for the Lone Star Ordnance Plant. The Navy wanted



his great production talent-so, (no nonsense about interservice competition) he poured the Navy Base in Utah. Now a bril-

SIX STAR GENERAL

liant leader. he won his 4th star in a top secret job - ready mixed concrete for the immense A-bomb Plant in Washington.

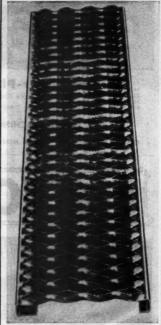
His 5th followed: concrete for the rocket-powder Government Ordnance Plant in Arkansas.

Then came peace and civilian life. Perhaps for sentimental reasons he accepted a key position pouring for a large dam in Wisconsin-his birth state. As the last yard was poured, he was asked to reenter military service. . . . His delight was unbounded when he found he was to ready-mix for the H-Bomb Plant - and with it now has come his 6th star of command. As you see, he just won't fade away! If I weren't a conservative engineer I'd say that the progeny of Butler Bin had an actual genius for production and the durability of Gibraltar.

See you in December.

BUTLER BIN COMPANY WAUKESHA, WISCONSIN

RUBBER ADDED TO FLOORING-Consisting of plastic asphalt-rock limestone and cold asphalt emulsion this material is said to give floors a live feeling which lessens tendency to rut or wave under heavy point loads and reduces brittleness in subfreezing weather. Marketed under the trade name IMMEDIATE-SET, the material is factory-mixed and requires no additives or processing be-fore use. It's particularly suitable for large area floor resurfacing with a thin (1/2 in.) layer. Also fine for patching small damaged areas. It's shipped premixed in 100-lb moistureproof fabric bags or in aggregate form with supplementary pails of asphalt emulsion for on-location storage and mixing, when needed .-Flash-Stone Co. Inc., 30 E. Rittenhouse St., Philadelphia 44, Pa.



SKID-PROOF GRATING-Non-skid grating is called Grip-Strut Grating, because it presents a skid-proof surface on the edges of a series of formed struts. These are joined, in turn, by integrated saddles to create strong lateral struts. The grating itself has a diamond-shaped pattern and the open area is 75% of the total reticulated surface. Manufactured from sheet steel or aluminum of gages 12 to 16, manufacturer's tests revealed that a typical section, 20 in. wide and 48 in. long, withstood over 100,000 1-in. oscillations without any damage, separation of struts or distortion. Suggested uses include catwalks, work platforms, steps etc .-The Globe Co., 4000 S. Princeton Ave., Chicago, Ill.

PUSH PIPE

UNDER STREETS, WALKS

TRACKS, FLOORS

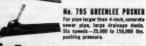


#### ...with a GREENLEE PIPE PUSHER

Yes, here's the quick and simple way to install underground pipe. With a GREENLEE Hydraulic Pipe Pusher one man pushes pipe under obstacles. No tearing up of pavement, lawns, floors... eliminates extensive ditching as just a short trench accommodates the Pusher. No tedious tunneling, back-filling, tamping, or re-paving. Job time is cut to a fraction. Pusher often pays for itself through labor savings on the first job or two.



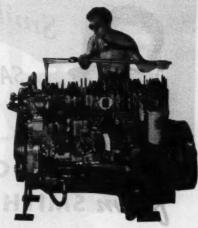
No. 780 GREENLEE PUSHER For 3/4 to 4-inch pipe. Six Speeds-6.500 to 40.000 lbs. combing pressure



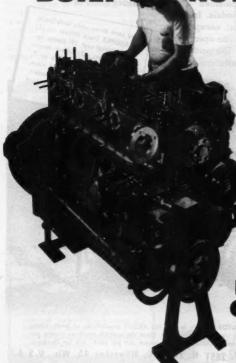




# Cummins. Custom Built Diesels



NOT ONCE BUT TWICE



Each rugged, lightweight and high-speed Cummins Diesel is actually built twice. It's assembled, run-in tested, disassembled . . . inspected . . . then reassembled and tested again. And each engine is custom-built to fit the job. Extra care in building, Cummins exclusive fuel system, efficient service and parts organization, enable users to get less "down-time", more power and profits from Cummins Diesels. See your Cummins Dealer.

Diesel power by CUMMINS



CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA
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Lightsreight High-speed Diesel Engines (50-550 hp) for: an-highway trucks aft-highway trucks - buses tracters - corphosores industrial focumatives air and trucks - buses languing prodes and loaders drilling rips contribugal pumps generator sets and power units work hoats and sleaver cells work hoats and sleaver cells



## Your Customers Also Benefit from SMITH [OAD [IMIT] Models

You can deliver MAXIMUM PAYLOADS and still keep your customers happy. Smith-Mobile LOADLIMIT models have the same efficient drums as standard models. You get the same uniform mix from the first cubic foot of concrete discharged to the last cubic foot . . . whether it's one yard or eight yards. LOADLIMIT machines have the same patented "T" shaped blades made of

the same gauge Manten steel as the heavier standard models. In fact, LOADLIMITS and standard Smith-Mobiles are identical, except that LOADLIMITS have no sealing doors to open or close . . . no operator's platform . . . no chute lifters . . . no sign panels, etc. The parts that have been removed are not necessary to smooth and efficient operation. LOADLIMIT models have the same rating

plates and carry identically the

You save three ways with Smith IOADLIMIT Truck Mixers [1]
Lower initial cost, (2) Lower operating costs, (3) Lower maintenance costs, Available in 3, 14½, 5½ and 6½, yerd sizes, 1½, 5½ and 6½, yerd sizes, with higher ratings for agitators, costs. Available is Standard costs.



LET YOUR NEARBY SMITH DISTRIBUTOR explain to you the PROFIT possibilities of Smith Tilting Mixers and Smith-Mobile Agitators for your Ready-Mix plant These dependable machines enable you to deliver high-quality concrete with speed and certainty at lowest cost per yord. Ask for literature.

THE T. L. SMITH COMPANY, 2851 N. 32nd St., Milwaukee 45, Wis., U.S.A.

CONCRETE MIXERS

For BIGGER and BETTER Concrete Mixers and Truck Mixers ... LOOK TO SMITH



NEW LIGHT PLANTS—Rated at 1,200 and 2,200 w respectively, two new 4.25-hp water-cooled light plants have been introduced to replace two smaller types previously available. The new "True Marine" models are the M1240-MS and the M2140-MS and have mechanical fuel pump, electric starter switch, battery cutout, marine-type water pump, carburetor, flame arrester, drip collector, and automatic thermostatic temperature control of cooling water. They will fit into less than 2 ft of space, says the maker, and are available for both ac and dc use.—Universal Motor Co., Oshkosh, Wis.



4-11 Queens Blvd., Woodside, L.



Carver builds a complete line of Self-Priming Centrifugal Pumps from 4,000 to 240,000 G. P. H. They have the reserve power and stamina for outstanding dependable performance throughout long life on all kinds of construction work.

Put these Carver Pumps on any job you have. You'll be amazed at their lightning fast automatic prime, high suction lift, capacity to handle more water, faster, farther, easier.

No matter how tough the assignment Carver Pumps do the job thoroughly because they're designed right. Order the Carver Pumps you need today — they're your best buy for better performance.

## CARVER PUMPS Muscatine Iowa



PLASTIC MORTAR PAN — The lightest pan we've heard of is a new plastic model called "EVEN-KEEL," which weighs only 4 lb as against the usual 16- and 18-pounders. Weight for weight it's stronger than steel, says the manufacturer, and measures 20 x 29 x 7 in. It's capacity is 2.4 cu ft. The pans contain on rivets, no folds, since they're made in a one-piece, seamless molding. They won't rust, certainly, as do their metal counterparts, and the maker says they won't sag, dent or corrode, either. Because of the high degree of resiliency in reinforced plastic, it's easy to remove left-over mortar. Just flex the upturned tray and the dry mortar will fall away.—American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.



AIR CONTROL FOR SWING SAWS —A millman who works with a swing saw has to line up the stock, then hold it firmly with one hand while he swings the blade over it with the other. Now by drilling four holes for installation on any Hesteon and Anderson rig, he can quickly install an Air Operating Unit which can automatically move the saw forward at a predetermined speed. It can be set to travel only the required distance to cut off the stock; then returns to its position behind the guide rail, leaving the table clear for removal and reloading. Move-ment is controlled by a lever or button at the operator's fingertip. Even if this lever or button is held, movement is limited to one cycle and the unit will not receive another impluse until it has completed its swing and returned to rest. Fatigue factor is almost completely removed, since the carpenter or bricklayer doesn't have to expend any effort to move a wood or masonry blade.— Hesteon and Anderson Div., St. Paul Foundry and Mfg. Co., Fairfield,



A prominent user of the Ford "254" Six-Cylinder Industrial Engine is the Wayne Crane Division of American Steel Dredge Co., Inc., of Fort Wayne. Wayne Cranes are readily adaptable for use as a shove!...trench-hoe...dragline...clambell...willty and magnet crane.

 Now, more than ever, Ford Industrial Engines and Power Units mean "profit-power" for your equipment. That's because Ford Power is right three big profit-making ways:

L. Right Power—Ford Industrial Engines and Power Units are available in five great models from 120 to 337 cu. in. displacement . . . a four, two sixes and two V-type eights. Every unit is individually tested, ready to run.

 Right Features—standardize on Ford Power and you have available a complete line of special Ford equipment, mobile components and accessories to meet specific operating requirements.

3. Right Service—with Ford Power you're assured of efficient, accessible service, as near as the nearest Ford Dealer. He stocks replacement parts, too . . . no need for you to carry a large parts inventory.

For equipment with "profit-power," specify Ford Industrial Engines and Power Units.

YOUR JOB
IS WELL-POWERED
WHEN IT'S
FORD-POWERED

## Ford )

INDUSTRIAL ENGINES
AND POWER UNITS

Nere are some typical Ford-powered construction applications:

Hoists . . . Cement Mixers . . . Crushers . . . Air Compressors

Pumps . . . Concrete and Bituminous Spreaders
. . . and many others.

INDUSTRIAL ENGINE DEPARTMENT Tractor & Industrial Engine Division

FORD MOTOR COMPANY

Highland Perk, Michigan

Our experienced Sales Engineers are at your service in developing engineering recommendations for the most efficient use of Ford Industrial Power in your particular application. Industrial Engine Department, FORD MOTOR COMPANY
15050 Woodward Ave., Highland Park 3, Michigan

I aminterested in Industrial Power for

(state your application)

Send me new 1951 literature on Ford Industrial Power (co. in. dipl. and cylinders as shown).

"120" 4-Cyl. "226" 6-Cyl. "239" V-8 "254" 6-Cyl. "237" V-8

Firm Name.

(Plasse print)

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## DOUBLE the POWER

and you double the use
of your FORD Tractor



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CONVERSION

**FUNK Products include:** 

Straight Power
Take-Off Clutches
Right Angle Take-Offs
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and Heavy-Duty Clutches



You can do unbelievable jobs with ease when you equip your Ford Tractor with a regular 100 h.p. V-8 or 95 h.p. 6-cylinder Ford engine, on your old or new tractor, with our change-over kit. Increases operation time, and enables tractor to handle heavier equipment and accessories. Conversion costs about 1/3 as much as most tractors of same power. Install it yourself or have your dealer do it. Write TODAY for specifications and prices.

### FUNK AIRCRAFT CO.

3303 AIRPORT DRIVE

COFFEYVILLE, KANSAS

## STERLING CARTS For Wheeling Concrete and other Materials

IT STANDS ALONE

Investigate the unusually sturdy construction of this perfectly balanced cart. It's the best that money can buy. Outlives any other cart. That's why it costs less. Choice of 30" dia. steel wheels or pneumatics. Illustration shows No. 828-PR Cart with dumping rockers and pneumatic tree, 6 cu. it. capacity, water full. Eight other models. Write for Catalog No. 63.

Top edge reinforced with continuous ½" dia. butt-welded rod.

Tray is made of 14 gauge steel.

11/4" Y-iron rockers facilitate dumping and cleaning out.



enclosed in cage to prevent locking, are standard equipment.

Extra heavy steel rim keeps wheel in perfect alignment

STERLING WHEELBARROW CO., Milwaukee 14, W



Look for this Mark of STERLING Quality



WATER COOLER-A handy item to have on the job in sufficient numbers is an insulated container for keeping water cool or coffee hot, depending on the weather. Such a container is the Igloo, made in 11/2-, 3-, 5-, and 10-gal. sizes. Galvanized sides are corrugated and its doublefolded seams will take quite a banging around. Made with or without a pushbutton, which is inset flush with the side to prevent being broken off, the can features two extra heavy handles which protect the removable top cover. Fully insulated, it has kept liquids cold or hot, as desired, all day on tests.—Betts Corp., 320 S. 66th St., Houston 11,



PORTABLE GRAVEL PLANTS New to the crushing industry, these units have bottom deck feed and permit balanced crusher loads through adjustment of jaw crusher settings. These jaw crushers — and travel weight—are the only items in which the new models are not identical. The 25V has a 10x36 jaw; the 24V a 10x24. Travel weights (without power units) are 46,000 lb and 42,100 lb, respectively. Each has a swiveltype field conveyor, 24-in, mechanical feeder; 24-in. x 25-ft channel frame conveyor, over-all length of 40 ft. travel height of only 12 ft 6 in. and 21-ft wheelbase. The plants are pneumatic-tired mounted on twelve 10.00 x20 tires, 3 axle, with equalizer between the two rear axles.-Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.

CP Hicycle Saws have 55° bevel adjust-ment for angle cuts; blade speed won't sag... reserve power makes heavy cuts easy, blades require fewer sharpenings or replacements.



CP Hicycle Vibrator can be used anywhere within a 400-foot radius without moving generator. The mater is in the vibrator head—no flexible shafting is used. Vibrating frequency 10,000 V.P.M.



CP Hicycle Wire Brush Machine, also used for grinding and sanding.



# HICYCLE ELECTRIC TOOLS for AVY-DUTY SERVICE

with low maintenance

Developed to meet heavy industry's production line demands for continuous service on a three-shift basis, CP HICYCLE ELECTRIC TOOLS are equally efficient and economical on construction jobs.

They operate on 180-cycle, 3-phase, 220-volt current, and are powered by a light, inexpensive, gasolinedriven portable generator, which can be carried easily from one location to another by one man.

More powerful and more rugged than ordinary electric tools, HICYCLE TOOLS maintain speed under load. Maintenance is remarkably low because high speed, squirel cage induction motor has no brushes to replace, no armature to burn out.

DRILLS WOODBORERS **NUT RUNNERS** 

GRINDERS SANDERS **CONCRETE VIBRATORS** CIRCULAR HAND SAWS EXHAUST VENTILATORS

Write for detailed information.



PHEUMATIC TOOLS . AIR COMPRESSORS . ELECTRIC TOOLS . BIESEL ENGIN ROCK DRILLS . HYDRAULIC TOOLS . VACUUM PUMPS . AVIATION ACCESSORIES VIBRATING SCREENS-Here is a compact 20-p booklet on Model "UP" vibrating screens for fast, accurate dry-screening of light and fine materials and Model "NRM" liquid vibrating screens for high-speed separa-tion of solids from liquids. Both types of screen are available in a wide range of sizes. The "UP" can be supplied with single or multiple decks, and with semi- or totally enclosed housings. Descriptive material includes specific information on how to select the right screen and screen cloth for maximum operating efficiency; dimension tables, weights, horsepower requirements and other data of value to engineers and plant operators. New book is No. 2377.— Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill.

ROLLING TOGGLE FOR JAW CRUSHER—When a large timber or piece of scrap metal is accidentally fed into a jaw crusher, you would expect more damage than just the shearing of a few rivets. But that's all that happens, according to one manufacturer, because of a new dry rolling toggle. Since the ends roll—not slide—on the mating toggle seats, minimum wear results. The toggle incorporates a safety shear member between the pitman and the frame so that the shearing occurs instead of a complete breakdown. These rivets



SPIKE SEZ: This Red Feather is for you, my dear. You can depend upon every construction man cheerfully to help his local Community Chest and the United Defense Fund (which includes welfare work for the armed forces). Watch us go!

are easily replaced in the field and the machine is readily put back into operation. To assure the rolling action between mating toggle ends, a high coefficient of friction is needed and is obtained by using no lubrication. This, in turn, helps keep the area under the crusher dry and clean, while lowering lubrication costs. The crusher in question is the "A-1" made by — Allis-Chalmers Manufacturing Co., Milwaukee, Wis.





## FLASHING SPEED or SUSTAINED SERVICE AMERICAN BOSCH

-for flashing speed in the air or on the speed- Bosch Magnetos as original equipment. way . . . or for rugged, sustained operation in oil field, construction or farm service, you'll naturally find American Bosch Super-Powered Magnetos on the job. These world-famous Magnetos deliver the faultless spark ignition and unerring reliability you look for in your equipment. Because they stand up under the heaviest loads and give long, economical work life, regardless of the type or severity of service,

Wherever dependable spark ignition is needed many leading engine builders choose American

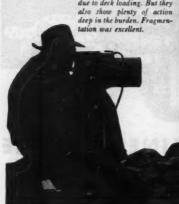
Whatever your magneto requirements may be, American Bosch can provide the practical answer for outstanding ignition service. American Bosch Super-Powered Magnetos are available in various types and sizes for engines large and small-special low-tension models for large stationary gas engines. Ask us for the facts



AMERICAN BOSCH-CORPORATION . SPRINGFIELD 7 . MASS

# What Really Happens When a Blast Is Shot?

Machine gun camera photos taken at Chisnell Coal Company, Hazleton, Pa, disclore some escape of explosives gases due to deck loading. But they also show plenty of action deep in the burden. Fragmentic.





## ... the Machine Gun Camera Sees All, Tells All!

Like the photo-finish camera at the race track, the machine gun camera with its big lens and rapid shutter makes a "stop-action" record of what the human eye can't follow.

The machine gun camera automatically snaps three photos a second on fiveinch film. It sees all and tells all about what *really* happens when a blast is shot. Now, Atlas can show you proof in pictures of what the ROCKMASTER Blasting System actually does for blasters.

Atlas technical men use the machine gun camera to "freeze" the action of blasts in quarries, strippings, and construction jobs. They have caught as many as 42 pictures of a single blast—a photo sequence that tells exactly what happens from the instant of detonation till the dust settles.

Your Atlas representative will be glad to show you the picture presentation of the ROCKMASTER story. He will show you through the eye of the machine gun camera how you can profit by using the correct numbers of the sixteen ROCKMASTER milli-second delay detonators teamed with the ROCKMASTER system of explosives choice and loading methods.



For a preview of the ROCKMASTER Machine Gun Camera Presentation, send for this free booklet.

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HANDLES EASIER
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# PEARS N FIELD TES Also available in the popular STANDARD ONE-SPEED DRILL

The Parmanco Two-Speed Transmission Drill is designed to meet the requirements of the general prospecting field where it is not necessary to drill in solid limestone. Special sliding frame permits drilling and pulling of augers without moving drill. New design of chuck eliminates all hand operation in raising power plant. Recommended for 50 to 60 feet with six inch equipment and can be used to greater depths with four and one-quarter inch equipment.

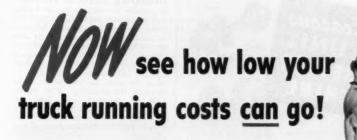
PARIS MANUFACTURING COMPANY
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MATERIALS-HANDLING PUMP—Air-operated double-acting pumps are designed for use with spray or flow guns including those used for fine finishing work. They handle all materials from thinners, enamels, lacquers, and paints to adhesives, sound deadeners, heavy roofing materials, and protective coatings of all kinds. The pumps operate directly from original shipping containers. Materials pressures as low as 3 lb can be maintained.—Binks Mfg. Co., 3122 Carroll Ave., Chicago 12, Ill.



SASH PIN DRIVER-For generations past, the familiar, round 12-gage sashpin has been the fastening device on sash mortise and tenon joints. But not until 1951, to our knowledge, has anyone come up with a mechanical means of guiding and driving them. This Model AK-12 Spotpinner is built primarily for production line use, and contains two fully loaded magazines of pins within its light-weight frame. Galvanized Spotpins have chisel points to avoid splitting check rails or thin muntins, and their rounded sides are knurled for gripping power. The AK-12 drives all three sizes of pins, %, 1, and 1% in. The pins are cohered in sticks for easy magazine loading, much like staples in a stapling machine.—Spotnails Inc., 1218 Sherman Ave., Evanston, Ill.

FIRE-DETECTOR actuates carbon dioxide cylinders-One of the most recent installations for protecting vital records from fire was that done for Canadair Limited at its Cartierville airport where engineering vaults comprising a total of 17,372 cu ft were fitted with 29 75-lb cylinders of carbon dioxide connected to a series of ceiling-type Kidde fire detectors. Many specs nowadays include a provision that ample fire protection be built into storage vaults. With this system, any sudden rise of temperature within the room causes the heat-sensitive detectors to release the pressurized gas automatically through piping and Multijet nozzles. This inert gas completely floods the areas, excluding all oxygen, and simultaneously sets off an alarm and stops any ventilating machinery. As an added safety feature, the system can be actuated manually by pull boxes outside the vault .-Walter Kidde & Co., 40 E. 34th St., New York 16, N. Y.

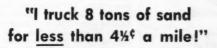


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This 144-page book is a record of over 5,500 cases . . . on-the-job truck running costs in over 195 kinds of truckusing businesses. It's another Ford first, and only your Friendly Ford Dealer has it!



Final Ford Truck Economy Run Results are in! Owners from every state in the U.S.A. rolled up 53,783,930 miles-recorded these on-the-job running costs. Every important truck-using business was represented in the 6-month Run, every size Ford Truck, every kind of road and load condition.



-says Adolph Ulmer, Jr., Ulmer Sand & Gravel Co., Beaver Dam, Wisconsin

Mr. Ulmer was one of over 250 heavy construction operators who entered the nationwide Ford Economy Run. His POWER PILOT equipped Ford F-7 Dump Truck traveled 18,956 miles at a cost of



only \$825.30 for gas, oil, maintenance and repairs!

You'll find his complete running cost record on page 62 in the "Final Results" book. See how your truck running costs stack up with other heavy construction men from all parts of the country-men whose loads and working conditions are similar to yours. See evidence of Ford Truck Economy!

New "Final Results" book gives black-andwhite evidence of how little it can cost to run a Ford Truck in your kind of work!

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on a fast loading MILLER Tilt-Top

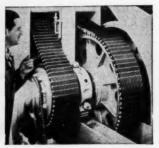
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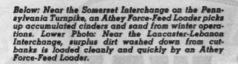
SONISCOPE DETECTS FLAWS-Soundness of concrete can be tested and cracks or voids discovered by using a new ultrasonic detector called Soniscope, developed by the Hydro Electric Power Commission of Ontario. Composed of connected transmitter and receiver, a central control unit measures the time it takes to send an ultrasonic wave through the concrete. With thickness of concrete and time as known factors it's a simple matter to compute the speed of the wave, which indicates the soundness of the material. As the number of imperfections increases, the wave becomes slower.-McPhar Engineering Co. Toronto, Canada.



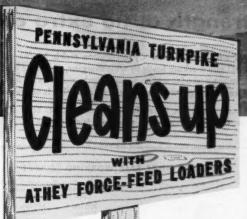
HIGH-VELOCITY CHAIN DRIVE-

Power-transmission chain drive combines high velocity with smoothness of action and lack of vibration. The Hy-Vo makes possible single drive units capable of transmitting up to 5,000 hp at speeds of 6,500 linear fpm, or rotative speeds to 3,600 rpm. A 2-in. wide Hy-Vo has transmitted 500 hp, the manufacturer states. The Hy-Vo features a new chain-andsprocket engagement principle that virtually eliminates chordal or polygon action. The sprockets resemble involute gears. A compensating rocking joint eliminates slippage and wear. Pitch elongation has been eliminated to the extent that it is virtually unnecessary to provide any means of take-up. Available in only limited production, it is specially recommended for speed applications higher than conventional chain drives .- Morse Chain Co., 7601 Central Ave., Detroit 8, Mich.

HENITION PROTECTIVE SPRAY—With cold, damp weather not so far off, the old bugaboo of hard starting in automobile and truck engines won't be feared quite so much. According to its maker, a quick squirt or two of "Shortstop," an ignition spray in an Aerosol can, will do the trick and seal the ignition against moisture for several months. Application from one of these self-spraying Aerosol cans is quick, easy and clean. It's available in 3-oz size for glove compartment or tool box; in 12-oz cans for the shop.—Zaco Laboratories, 1360 W. 9 St., Cleveland 13, Ohio.







The world-famed' superhighway, the Pennsylvania Turnpike, depends exclusively on Athey Force-Feed Loaders to remove snow, to pick up cinders spread during the winter months, and to remove dirt washed down by heavy rains.

Athey Products Corporation

5631 West 65th Street Chicago 38, Illinois

The Athey Portable Breaker companion tool to the Athey Force-Feed Loader — is the machine that is revolutionizing road rebuilding. With this machine old surface material is used to make a new, longer-lasting road. Athey Force-Feed Loaders are used the year around on this 240-mile toll-road. Dirt, washed down from high banked cuts, is windrowed and quickly removed by Athey Force-Feed Loaders. Cinders, applied during icy weather for better traction, provide no problem for the Loaders during Spring clean-up. The accurate finger-tip control of the cutting edges on the Force-Feed Loaders prevents damage to the pavement during any loading operation. One-lane loading, with the operator on the traffic side, is a distinct feature, which results in safe loading. Fast "between job" travel permits more work time on loading jobs. "Billiard-table" pick-up

helps eliminate the need of expensive, hard-to-get hand labor.

These are a few of the superior features that sold this modern Highway Commission on Athey Force-Feed Loaders . . . that have reduced maintenance costs on the Pennsylvania Turnpike. You can reduce your costs, too, by investigating Athey Force-Feed Loader ability on clean-up, stockpile loading, snow-removal, material loading, oil-mixing . . . on any of the 34 different applications. Ask your Athey-Caterpillar dealer about the dollar saving advantages of the time-proved Athey Force-Feed Loader.

FORCE-FEED LOADERS

# Specify \_\_\_\_

## UPSON-WALTON

Tackle Blocks



SAFE working loads of Upson-Walton tackle blocks exceed usual safe working loads by wide margins. (See table below.) They are engineered to withstand not only the weight of the load, but hoisting strength as well. In many cases a shackle is not required.

Specify this extra strength—at no extra cost. Your Upson-Walton distributor can serve you from local stocks.

#### COMPARE THESE SAFE WORKING LOADS!

								Usual Safe Working Load	Upson-Walton's Safe Working Load
3" Single. 3" Double 3" Triple.			٠					200 lbs. 300 lbs. 400 lbs.	265 lbs. 400 lbs. 540 lbs.
4" Single. 4" Double 4" Triple .								400 lbs. 550 lbs. 700 lbs.	510 lbs. 730 lbs. 925 lbs.
5" Single. 5" Double 5" Triple .							:	500 lbs. 750 lbs. 1000 lbs.	675 lbs. 1000 lbs. 1325 lbs.
6" Single . 6" Double 6" Triple .								1000 lbs. 1500 lbs. 2000 lbs.	1320 lbs. 1900 lbs. 2640 lbs.
7" Single. 7" Double 7" Triple .	:							1500 lbs. 2000 lbs. 2500 lbs.	1700 lbs. 2575 lbs. 3000 lbs.
8" Single. 8" Double 8" Triple .								1700 lbs. 2450 lbs. 3200 lbs.	2200 lbs. 2850 lbs. 3500 lbs.
10" Single. 10" Double 10" Triple .								2600 lbs. 3400 lbs. 4200 lbs.	2750 lbs. 3650 lbs. 4900 lbs.
12" Single. 12" Double 12" Triple .					:			3000 lbs. 3750 lbs. 4500 lbs.	3000 lbs. 4600 lbs. 5400 lbs.



#### NOT THIS HOOK - but THIS HOOK

No Upson-Walton boist books are formed by bending. All are drop-forged to size and shape, with substantially beavier section at critical points.

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... of all this

equipment!

Chrysler Industrial 15 — one of eight basic models

CHRYSLER-BUILT INDUSTRIAL ENGINES ARE THE SOURCE OF POWER FOR:

**Ditching Machines** Cranes Truck Mixers Shovels Loaders Yarders Concrete Mixers Road Pavers **Crane Carriers** Scoop Tractors Air Compressors Hoists Derricks Pumps Generators Conveyors Tackle Blocks Winches Tractors Combines **Gana Mowers Spreaders** Irrigation Equipment **Orchard Sprayers Hay Choppers** Pumps Feed Mills Sprinklers Locomotives **Motor Coaches Drilling Equipment** Air Conditioning Equipment **Pulp Machines** Fire Pumps

Fire Pumps Street Flushers Snow Plows Oil Well Pumps and Drillers

Original equipment manufacturers the nation over install Chrysler Industrial Engines in their equipment because Chrysler-built means better performance... rugged dependability...trouble-free operation... longer operating life, service everywhere.

Continuous Chrysler research in higher alloy steels and famed Chrysler engineering have produced an industrial engine capable of sustained high speeds with less wear... an engine that costs less to operate, less to maintain.

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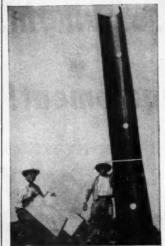
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Tapes - Rules - Precision Tools

THE LUFKIN RULE CO. 142-B
SAGINAW, MICHIGAN, — Barrie, Ontario
132-138 Lafayette St., New York City

ROLLER TYPE CONVEYOR—Using steel rollers to replace skate wheels, this conveyor is especially recommended for objects and bundles not having a rigid, flat bottom. Mounted on heavy casters, it is readily telescoped in or out to a maximum of 30 ft. Supplied in 12- or 18-in. widths, the rugged, all-steel rig can be quickly rolled from one job to another, or stored easily in a truck. The Wilkie Co., 5520 Arch Street, Philadelphia 39, Pa.



PORTABLE FLUMES-While workmen are doing their chores in Hawaiian cane fields, it's important that irrigation waters be channeled around them. For this they have always used concrete chutes 3 ft long, butting several together whenever necessary to make an extended runoff. The old order changeth, however, even in the cane fields. Now they use 15-ft long plastic sections which weigh only 24 lb and can readily be handled by one man, as the picture above shows. Only 1/16 in. thick, it is manufactured in flat sheets which are then formed into a semicircular shape for fluming. Rated to last 10 yr., it can undoubtedly be put to many other uses in the civil engineering and construction fields. It's made by-The Panelyte Division, St. Regis Paper Co., Trenton, N. J.

MANUAL SPRING COILER—Torsion, compression, extension and tapered springs, coiled either right or left hand on wire stock from .005 to .125 can be produced readily by new Perkins Precision Spring Coiler. For tapered or conical springs, an outside dia adjustment knob can be turned gradually as coiling handle is manually operated. Made of cast iron and tool hardened steel, the machine measures 8x14 in.—Perkins Machine and Gear Co., Circuit Ave., West Springfield, Mass.



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• 8 sizes—500 to 6,000 lb. batch capacitles

e Fully automatic or manual weighing From California to
New Jersey the new
Standard Asphalt
Plant is being halled
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For Industrial

For better service and more economy

## MACWHYTE WIRE ROPE

A thousand and one to order from assures the right rope for your equipment

It will pay you to get Macwhyte Wire Rope, engineered and job-proved for your particular equipment. Over the years, ropes for all types of equipment in every field have been developed by Macwhyte. Recommendations are promptly available from Macwhyte distributors or Macwhyte Company. You get the correct wire rope for your equipment when you buy Macwhyte.



MACWHYTE COMPANY, 2941 Fourteenth Avenue, Kenosha, Wis.
Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire
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Wire Rope. Catalog available on request. Mill depots: New York \* Pittaburgh
\* Chicago \* Minneapolis \* Fort Worth \* Portland \* Seattle \* San Francisco \*
Los Angeles \* Distributors throughout U.S.A.

BULLETIN 5025 gives information on "How to order Wire Rope" and lists all sises and constructions of Improved Plow Steel Monarch Whyte Strand Wire Rope. Copy sent on request.

1009



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FOR HEAVY GOING



## Pall Magnetorque\*

SLICKEST SWING YOU'VE EVER KNOWN

It's everything you've wanted for more profitable rock handling... It's the P&H 955-A (2½ yd. shovel)... newer... better... proving it where the going is heaviest. Here's why:

P&H MAGNETORQUE ELECTRIC SWING. The smoothest, slickest swing you've ever known... yours for the full life of your machine. Old style swing frictions are out... all their troubles, adjustment and replacement costs.

SMOOTHER OPERATION means less strain on machine and operator. GREATER STABILITY gives you increased digging ability. ALL-WELDED for maximum strength.

Ask to see the one working nearest you. It's the  $2\frac{1}{2}$  yd. version of the famous 1055 ( $3\frac{1}{2}$  yd.)



\*T. M. of Harnischfeger Corporation for electro-magnetic type clutch.

"I bought a Martin 'Folding Gooseneck' Trailer

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Narsaw's truck and Martin Trailer arriver



Unfolding quickly and easily, the "Foldin Generatik" provides a perfect ramp fo



Equipment in place four minutes after arrival, the truck picks up loaded trailer with winch power . . .



Rolling — the loaded unit is low, providing maximum stability under all con

Fort Wayne contractor

"You can never get into a spot where you can't load a Martin 'Folding Gooseneck' Trailer," says Ed Warsaw, of the Warsaw Construction Co., Fort Wayne, Indiana. "I've loaded every type of equipment over the timesaving 'Folding Gooseneck'."

"The Neoprene rubber mounted tandem floats the load over rough roads we travel. Awkward cranes and draglines ride secure and safe, easily clearing the low bridges in our area. That safety angle is an important one — there's little or no danger of tipping with the 'Folding Gooseneck'. We're sold on this trailer!"

You'll be sold, too, when you see "this trailer" in action. Stop in at our branch near you and ask about the Martin "Folding Gooseneck" Trailer and its saving features.

WATER REPELLENT — Siliconebase water repellent is designed for use on uncoated exterior masonry walls. Monoseal is said to penetrate from ¼ to % in. It is a transparent, colorless, thin liquid and can be applied by brush or spray. The silicone is said to coat the pores and still permit the masonry to breathe. It is impervious to oxidation and prevents efflorescence. — The Monroe Co., Inc., Dept. M.1, 10703 Quebec Ave., Cleveland 6, Ohio.



HOIST BINDERS-Since this Hoist Binder works on the ratchet hoist principle, it will take up or slack off a load chain to a fraction of an in. According to the manufacturer, this advantage over eccentric type binders is especially important with lumber or other "springy" loads where the binding chain or cable must be tightened by force through a considerable length to bind the load fully. If a load settles or shifts in transit, this unit can be tightened in any amount without releasing the load for a new grab. The ratchet and pawl construction allows backing off or binding by use of the handle only-there are no buttons, levers, clips, or other locking devices. In fact, the handle may be removed to prevent tampering or accidental release. With the handle out, the load cannot be released by any means. This same handle is designed to bend before the hoist can be overloaded. Weight: 10 lb. Pull: 3,000 lb. Chain supplied is 201/2 in. long, but longer piece can be used.—Coffing Hoist Co., Danville, Ill.



KEWANEE ILLINOIS, U. S. A.

### **GULF PRODUCTS** and **FINE SERVICE**

## keep equipment rolling

on Delaware Water Supply Project



RAZIER-DAVIS Construction Co. is one of a number of prominent Midwestern contractors who finds that it pays to use Gulf quality lubricants and fuels.

There are three solid reasons why so many leading contractors prefer the products identified by the familiar orange disc. One is performance—the kind of lubricant and fuel efficiency that means smooth, dependable operation and low maintenance costs. Another is the expert engineering service Gulf provides. Third, Gulf's prompt delivery service.

Write, wire or phone your nearest Gulf office and arrange to use Gulf quality lubricants and fuels on your next job. Gulf products and that good Gulf service are quickly available to you through more than 1200 warehouses located in 33 states from Maine to New Mexico. Gulf Oil Corporation • Gulf Refining Company, Gulf Building, Pittsburgh, Pennsylvania.







An exceptionally sturdy barrow, designed especially for handling brick, concrete building blocks, and hollow tile. Dash reinforced with heavy steel strip. Body constructed of selected hardwood, well seasoned and smoothly finished. Individually lathed handles with grip formed ends.



4.00 x 8 R.T.W Drop Center Rim, Plain, Ball or Roller Bearings, 2 or 4 Ply Tire.



18" All-Steel Wheel, 2 or 3 Inch Tread, 34"

BUCH MANUFACTURING COMPANY
ELIZABETHTOWN, PENNA.

SELECTIVE TWO-WAY RADIO— One of the few faults to be found with two-way radio installations on construction jobs is that everybody hears everybody else's calls, conversation, decisions, etc. Often when one brass hat at the office wants to talk to another in a mobile unit, he must ask him to find a land phone and use it if he wants to keep the conversation private. Then again, continuous calls to an individual who has necessarily left his vehicle and doesn't answer certainly harass others who hear the repeated calls.

Now General Electric has developed the first all-electronic radio communications system which allows a headquarters dispatcher controlling a large number of units to talk privately to an individual driver. He may also talk with a particular group of cars or pickups, or all at

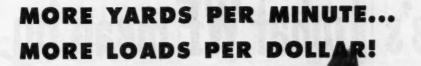
once if desired.

With this new equipment, a twoway radio system can be separated into as many as ten groups. To reach a particular driver the dispatcher pushes a button which sends out a coded signal, activating only those receivers in the driver's group. All drivers hear the call, but only the individual called answers. Other receivers are then silent on subsequent transmissions because these messages are not preceded by the coded signal. Manufacturer also believes that driver fatigue, caused in part by the strain of listening to every call to catch those intended for himself, should be decreased greatly.-General Electric Co., Schenectady 5, N. Y.



TRACTOR WINCH—In addition to concealed cable controls, a new tog-gle-type brake and choice of standard or slow speed gears, this new Carco winch has an optional automatic brake which lets the tractor operator set his brake before pulling in a load. The brake takes hold simultaneously with disengagement of the clutch, preventing back-slipping of the load. This is particularly desirous wherever men are working near or under a load.

All exterior nuts and bolts on the new winch are recessed and flexible cable controls permit a choice of locations for the control stand. A Carco fairlead can be bolted directly to the case without welding or burning.—Pacific Car and Foundry Co., Renton, Wash.



Austin Overshot Loader Model 6C—1½ cu. yd. rated bucket capacity, 15 second cycle loading, for crawler tractors with 15,500 lb. min. d.b. pull.

Austin Overshot Loader Model 4C-1 cu. yd. rated bucket capacity, 15 second cycle loading, for crawler tractors with 9,500 lb. min. d.b. pull.

#### LOW MAINTENANCE...

You can get a conservative capacity of 6 cu. yds. per minute with the Austin 6C overshot loader! Plus rugged construction for strength to take the punishmens of toughest boulder and slab mucking. Front-end power take-off manufactured by Caterpillar transmits operative power through a single gear mechanism to actuate the wrap chain on each side of the loader. In digging position laminated chain is all on small diameter hub for maximum power. As bucket lifts, chain rolls up on cop of hub giving uniformly accelerated speed to dumping position. Fuel consumption is about the same as for normal dozer operation. Fits Caterpillar, International and Allis Chalmers tractors.

Austin Overshot Loader Model 8C—3½ cu. yd. rated bucket capacity, 20 sec. loading cycle, for crawler tractors with 28,000 lb. min. d.b. pull. Austin Overshot Loader Model 7C—2½ cu. yd. rated bucket capacity, 15 second cycle loading, for crawler tractors with 21,000 lb. min. d.b. pull.

#### ONE-MAN, STRAIGHT-IN-LINE SHUTTLE LOADING

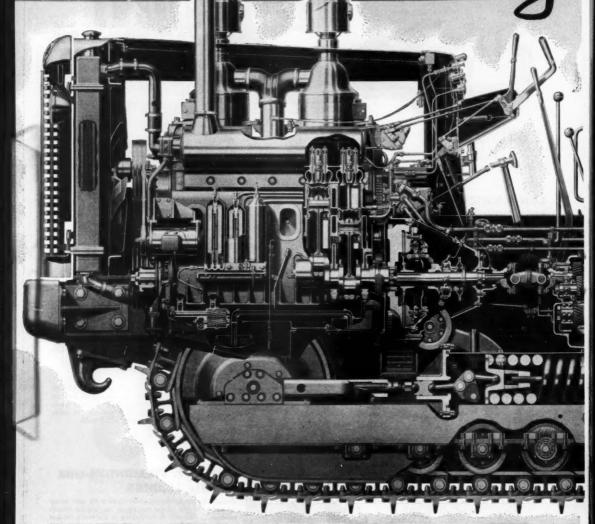
Action of the loader is controlled with one lever so operator can easily maneuver his tractor simultaneously. Horizontal mounting of the main bucket arm permits dozing the load with tractor's full power for cleaner mucking and consistently solid loads. Simple shuttle operation for one-man loading, cleaning, sweeping and excavation.

Special designs for underground, minimum clearance work.

Write for special information bulletin, today!

Cobis Address: "FORTRADE," DENVER

Here's What WE mean by





40.26 drawbar hp. 11,250 lb.



70 drawbar hp. 18,800 lb.



102 drawbar hp. 27,850 lb.

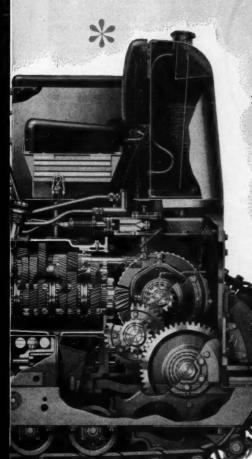


**Hydraulic Torque Converter Drive** 175 net engine hp. 41,000 lb.

DESIGNED FOR YOUR JOB

. EASY TO SERVICE

# BUILT TO TAKE IT



The new Allis-Chalmers tractors are the toughest, strongest tractors ever built. Every part in each of the four models has ample size and strength to do its job—not a weak link nor a compromise anywhere.

And that's no accident! To bring you tractors like these . . . with the qualities you want . . . Allis-Chalmers built 'em completely new — from the ground up.

You can depend on them to take the loads, the jolts of today's jobs . . . because they are modern tractors designed for the most grueling operating conditions. They will more than measure up to your expectations!

Here are just a few of the many reasons why this NEWEST, FINEST TRACTOR LINE ON EARTH is Built To

Take It . . . besides being easy to operate, easy to service and outstanding in performance. Your Allis-Chalmers dealer will gladly explain all these advantages . . . see him NOW.

- All-Steel Welded Construction
- More Power with Bigger Engines -Longer Engine Life
- More Weight, Greater Strength
- Long-Lasting, Large Diameter Clutches
- Extra Heavy Main Frames No Extra Reinforcement Needed for Front-Mounted Equipment
- Double Reduction, Straddle-Mounted Final Drive Gears with Live Sprocket Shafts and Caged Bearings
- Positive Operating Track Release -
- Werks in Oil on HD-9, HD-15, HD-20 All New, Specially Designed Track
- Positive-Seal Truck Wheels, Support Rollers and Idlers — Mounted on Tapered Roller Bearings. 1,000-Hour Lubrication!

ALLIS-CHALMERS

#### ARE YOU GETTING SAVINGS LIKE THESE?

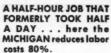
Here's a contractor who is . . with a MICHIGAN Truck Excavator-Crane.

On the Elk River Bridge Project, Garrett & Farris Company of Knoxville, Tennessee, uses it's MICHIGAN to pour concrete ... strip forms ... charge the batcher ... excavate for pier foundations ... load materials at a rail siding four miles distant and unload back at the job ... sort pilings and supply the pile driver ... position the pile puller when needed ... all in a day's routine.

And look at some of the savings:



ONLY 3 MEN NEEDED ON BATCHING AND POURING.





75% MAN-POWER SAV-INGS BY HANDLING STRIPPED FORMS with the MICHIGAN.

When it's versatility and savings you want . . . investigate MICHIGAN . . . you'll agree it's your best buy!

#### MICHIGAN POWER SHOVEL COMPANY

495 Second Street, Benton Harbor, Michigan, U.S.A.

PLANT TRACTOR—Called Model 3600—has been added to the Kalamazoo line of pulling equipment for use in industrial plants and warehouses. Powered with a 13-hp Wisconsin engine through an automotive type clutch, it has three speed and reverse transmission. It will pull as many as ten loaded trailers. Complete dimension and specification sheet available. Ask for Bulletin T.3600—Kalamazoo Manufacturing Co., Kalamazoo, 24F, Mich.

NEW CAPACITOR MOTORS — Available in ratings of 1, 1½, 2, 3 and 5 hp, this new line of single-phase motors was developed for use where extra severe conditions of dirt, grit or moisture are encountered. Being capacitor motors, they have no brushes or commutators to interfere with radio transmission or reception. More easily accessible grease fittings.simplify lubrication problems. All run on 115/230-v, 60-cycle power supply except the 5 hp size, which uses 230 v only.—General Electric Co., Schenectady, N. Y.



MECHANICS' PROTRACTOR
Helpful tool offers a practical solution to on-the-job angle-measuring
problems up to 180 deg. One setting
gives: Readings for outside angles
(such as angle of bend, or deflection);
readings for inside angles; and inches
per ft against degrees, up to 24 in.
per ft (63 deg 26 min). The protractor is constructed of Vinylite plastic.
—Interstate Sales Co. 123 E. 18th
St. New York 3. N. Y.

CEMENT COATING - This copperized hard cement coating, called COPROX, is recommended for use on masonry block, cinder block, clay tile, brick, concrete, asbestos shingles, etc. and is manufactured in colors of buff, gray, green and rose, as well as white. Other claims by the manufacturer include: no hairline cracks, dimensional changes or further chemical modifications: withstands very high degree of mechanical shock and higher hydrostatic pressures. They warn not to mix or apply the powder-water combination at a temperature less than 60 deg and advise working on shady side of structures to prevent the sun's drying it too quickly. The maker, upon request, will furnish a factory technical expert to supervise occasionally the mixing and application, at no expense to the contractor.-Coprox Inc., 1270 Sixth Ave., New York 20, N. Y.

# 9ts BALANCED



3

4

LESS TIRING at the end of a day's SAWING

#### NOT THIS ...

Ever lift a filled watering can? You quickly learned that using the rear handle put a strain on your wrist... required effort to keep the can level ... made it awkward to carry.



#### BUT THIS ...

...So you shifted to the handle on top. That made it easier to lift — to carry — to centrol. It's the same with a Speedmatic. Unlike saws with officenter or rear grips, Speedmatic handles easily, with less tiring strain.

Speedmatic—the original balanced one-hand power saw—eliminates much of the fatigue of a full day's sawing.

The reason for Speedmatic's effortless operation is this: it's balanced. The handle is on top, directly over the saw's center of gravity. Litts easier—guides easier. Weight is evenly distributed on the sides, front and rear. No tip! The extra-broad base gives solid support. No tilt! Blade is on the right—saw always rests on the main piece. No topple! In-line helical gearing banishes power jerk. No swerve!

It all adds up to this: Just steady, accurate sawing without straining. Speedmatic is the easiest-working saw you'll ever own!
Want proof? Ask your Speedmatic distributor for a convincing, on-the-site demonstration.



PORTER-CABLE Machine Co., 7030 N. Salina St., Syracuse 8, N.Y.

Mirs. of SPEEDMATIC and GUILD Electric Tools In Canada write: Strongridge, Ltd., St. Catherines, Ont.



MODEL K-89
8" blade - 2%" cut
Three other cises:
716", 1016", 19"



# ... but NO Push Beams/

Push beams are eliminated entirely in the revolutionary new bigbway wide Baker 9-X 'Dozer. Bulldozer and engine frame form an integral unit. Blade responds instantly through double-acting cylinders, which raise and lower tractor-dozer unit. And tying it all together, making it work, is an entirely new design in stabilizer bars and borizontal bearings.

Here are some of the advantages for many jobs:

HIGHWAY WIDE: Width only eight feet-

96 inches—exactly the same as standard highway trailers. Haul the Baker 9-X anywhere, anytime, day or night, with NO SPECIAL PERMIT.

PLENTY OF PUSH: Mounted right on an Allis-Chalmers HD-9, the moldboard is 6 inches higher than standard blades to provide almost same blade area, for plenty of push, plenty of capacity—with the famous Baker "move-more-dirt" moldboard curve.

IN FAST, OUT FAST: Steeper angle of approach on the blade because of close coupling. You can get in fast, out fast,





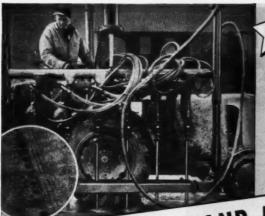
with the Baker 9-X Dozer. Makes it the ideal unit for jobs like slush pits; makes it the most practical dozer of all for small-home basements.

FULL LIFT, FULL DROP—Maximum lift is a full 37 inches, maximum drop is full 13 inches.

SURE-FOOTED CENTER OF GRAVITY: Even with blade at maximum lift, center of gravity is 6%" behind second roller—not more than a few inches ahead of center of gravity in unmounted tractor.
YOU CAN LEAVE BLADE ON FOR DRAW BAR WORK.

LIGHTER: Takes 1,150 lbs. less steel to build ... costs less to buy. See the new, revolutionary bigbway wide Baker 9-X Bulldozer—another triumph of Baker, Allis-Chalmers engineering cooperation, at your Baker, A-C dealer.





#### Multiple Drill Rig for Line-drilling

This self-propeiled rig has saved hundreds of dollars for contractors everywhere. It consists of 6 Le Roi-CLEVE-LAND H10 drills mounted on a Le Roi Centaur Tractor. All drills are attached to a single air cylinder controlled from the driver's seat, and feed into the concrete or pavement together. The rig is ideal for line-drilling and the web between the drill holes can be broached easily with Le Roi-CLEVELAND paving breakers. That's how it provides a fast, low-cost method of preparing pavement for trenching. Freedom from over-break permits clean, smooth resurfacing when job is finished,

Le Roi-GLEVELAND Announces

New Air Tools

For Contractors

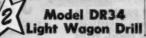
For Contractors

where some work, cut costs, and help keep

where we work, cut costs, and help keep

where we work, cut costs, and help keep

where we work where we were well and where we we





18-lb. H22 Hornet Rock Drill
Handy is the word for this new tool. Available

with spade or tee handle in wet or dry types. Fast drilling, easy holding, strong rotation, low air consumption, built-in lubricator, replaceable spacer bushing, 2-piece chuck and sleeve for %" hex x 314" steel. Built like a big rock drill. Ideal for foundations, demolition, plumbing, sewers, conduit, pop-holing, dimension stone, etc.

Here's a truly lightweight wagon drill. It's ideal for quarries, road jobs, mining — every highway department should have one. Can be supplied with 2 sizes of rock drills — either the famous Le Roi-CLEVELAND 45-lb, H10 or the 80-lb, H23 with 3½-inch bore. Feed action furnished by patented 2-in-1 air feed cylinder. 7-foot feed travel gives you 6-foot steel changes. Conveniently located controls permit selection of right feed pressure for highest drilling speed in any kind of rock. Strong, direct blowing easily cleans 20-foot holes. You can drill at practically any angle — toe holes with machine 4 inches from ground or flat holes 7½ feet from the ground. Adjustments are easily and quickly made by either hand crank or air motor.

No matter what your drilling job is — you can do it better, faster, for less with Le Roi-CLEVELAND rock drills and breakers powered with Le Roi Airmaster Compressors. Write for complete information or see your nearby Le Roi distributor.



LE ROI GOMPANY

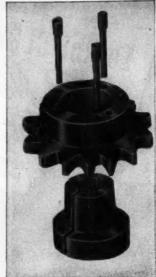
CLEVELAND ROCK DRILL DIVISION

12500 Berea Road, Cleveland 11, Ohio
Plants: Milwaukes \* Cleveland \* Greenwich Ohi



Also of timely interest is this ROGERS Tag-A-Long trailer which makes a dump truck serve as a tractor and effects sizeable savings for contractors.

COMPETITION FOR TOOLS - A series of competitive demonstrations for power-actuated fastening tools was held recently at the site of an industrial building project in Dayton, Ohio. Result: two records set. According to the Ramset Co., one of their fasteners seated 200 1/4-in. dia fasteners in 61 min to anchor 2x4 sleepers to concrete. This was against 93 min for competing tools and fasteners. In another test, other Ramset fasteners which had been seated in a concrete ceiling resisted a direct pull of 1,600 lb, which pulled others loose. As a result, the proved products and tools will be used on the project to anchor sleepers, plumbing lines and electrical conduits.-Ramset Fasteners Inc., 12117 Berea Rd., Cleveland 11, Ohio.



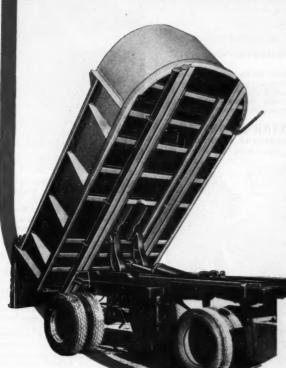
REPLACEABLE HUBS—Here's one manufacturer who saw the need for an interchangeable hub on his "QD" V-belt sheaves and roller chain sprockets—and at the same time lowered his customer's costs for replacement of broken or worn sprockets and precluded purchase of lots of "spares." Now his distributors can give off-the-shelf service without reboring.

The QD's are taper-bored to receive a tapered hub. The bolts seen in the picture pull the sprocket on to the tapered split hub for a tapered drive assembly and positive press fit on the shaft. Tapped holes in the sprocket permit pull-up bolts to be used as jack screws to break this tapered fit for dismounting and/or removal. Changes are simplified, maintenance time reduced, and costs lowered. Sprockets are stocked in ½-in. through 1¾-in. pitch.—Fort Worth Steel and Machinery Company, Fort Worth, Tex.





#### AN EXAMPLE IN PROGRESS





PERFECTION Bodies and Hoists were born with the start of a new construction era 33 years ago. They have grown steadily in ruggedness of design and construction – to meet the ever-increasing demands of modern construction requirements.

And because PERFECTION has maintained its engineering leadership in the truck body field, it has consistently grown in favor with Dealers and users the world over.

Write for literature.

#### PERFECTION in 1951

Photo shows a modern No. 354 Heavy-Duty Dump Body, 16 feet long, 15 cu. yds. capacity; equipped with a No. 1034 Iso-Draulic Roll-A-Lift; installed on semitrailer.



FOR ANY TRUCK STANDARD OF SPECIAL UNITS IN ALL SIZES - FOR ANY USE

Engineered, Manufactured, and Guaranteed by THE PERFECTION STEEL BODY COMPANY

. Galion, Ohio, U.S.A.

IT'S NEW!

IT'S DISSTON!

IT'S THE
BEST IN
LIGHTWEIGHT
SAWS!

Featuring -

Fast-Cutting

New,

Here is a new model of an old woods favorite—the tough, light-weight DO-101 Disston One-Man Chain Saw. It has a sturdier crankshaft, a reinforced rear handle, new rapid-action toggle stop-switch and many other advanced features for harder use and longer life. And, for smoother, faster cutting, the DO-101 is equipped with Disston's new fast-cutting "DF" chain. Running on a narrow profile slotted guide rail, this chain cuts a kerf that minimizes binding. Can be sharpened by hand on the rail in a matter of minutes.

Don't take our word that a Disston is just about the finest cutting tool that's ever come your way. Ask anyone who has ever handled a Disston. Then see your Disston Dealer. He'll let you try out one of these beauties for yourself. Once you feel that steady power safely under your command and effortlessly guide the chain through a cut, you won't rest until you own one of these timesaving money-makers yourself.

Don't forget, Disston also makes the powerful DH-120 12-hp Two-Man Extra Duty Chain Saw . . . a favorite the world over.



A tip for present

Disston Saw Owners...

Follow the simple FIGHT WASTE preventive maintenance instructions which are available to you free of charge. Send for the valuable check-up charts, the illustrated maintenance folder, the detailed handbooks. Above all, rely on the services of your Disston Dealer.

HENRY DISSTON & SONS, INC.

J-2 TACONY, PHILADELPHIA 35, PA., U.S.A. In Canada, write: 2-20 Fraser Ave., Toronto 3, Ont.

Narrow Slotted Guide Rail

THE DO-101 ONE-MAN SAW. 2-cycle, single-cylinder engine, Positive action clutch. Instant-starting, self-rewinding Magnapull Starter. Automatic chain lubricator. Fast-cutting "DF" chain and slotted profile guide rail in 20", 26", 32", 36", 40" lengths. Also available are 18" and 24" rails with straddle type chain and 15" bow saw for speedy bucking and limbing. Helper handle available for two-man operation.

SELF CONTAINED HEATING UNITS — Thermoblocs, providing controlled temperatures under field and shop conditions, come complete with fuel tanks and mounted on easily moved trucks. They are available with heat output ranging from 100,000 to 300,000 Btu per hr. Taking in cool air at the bottom, they discharge it horizontally overhead. They're built to accommodate either a gas- or fuel-oil burner interchangeably. When fitted with recirculators they can produce temperatures of 400 to 500 deg for drying towers and the like. — PratDaniel Corp., 9 Meadow St., South Norwalk. Conn.



PLASTERING MACHINE - Using lightweight vermiculite plaster in place of sand in the mix, this E-Z-ON plastering machine pumps the mix from a hopper through a rubber hose to a spray nozzle. At this point compressed air sprays the plaster uniformly on walls or ceilings with a nozzle switch determining stop and start of flow. It can pump as far as 80 ft from the hopper, and in several instances, two plasterers have set the rig up in the basement of a twostory house, passed the hose up through holes purposely left in the floor, and "browned out" two houses in one day. The picture above was taken at the height of plastering operations for the new \$4,000,000 176-unit Wilshire Manor apartment building in Los Angeles where plaster was put on in record time. There it handled vermiculite plaster aggregate over 2-in. solid gypsum lath partitions, direct application to half the ceiling area of accoustical plastic and to the remaining areas a mixture of 200 lb of gypsum hard wall and 2 cu ft of Zonolite finish aggregate. Info available from—Zonolite Co., 135 S. La Salle St., Chicago 3, Ill.

### DIGS AND LOADS



# 135 CUBIC YARDS PER HOUR!

■ Every 26 seconds, this T4 TRAXCAVATOR digs into rocky, in place gravel...comes up with a heaped bucketful...pivots...dumps, cleanly and accurately, into trucks...spins and tracks back to the bank for another load. In 60 minutes this versatile worker has dug and loaded 135 cubic yards!

In any material—clay, shale, shot rock, loam, caliche, tough soil—TRAXCAVATORS turn in big production at low cost. Their workability is not tied down to one job—they can dig, load, grade, backfill, excavate, remove snow—with the same high-speed.

Put TRAXCAVATOR speed—power—economy, to work on your jobs for greater profits. Your TRACKSON-"Caterpillar" Dealer will give you full information on the features of the tractor-shovel teammate of "Cat" Diesel Tractors, will show you the model that fits your needs. Capacities range from ½ to 4 cu. yds. Or write TRACKSON COMPANY, Dept. CM-101, Milwaukee 1, Wis.



Above — Hydraulic HT4 TRAXCAVATOR grading a street in Minneapolis, Minnesota.

TRACKSON TRACTOR EQUIPMENT



### You get more ... you save more with

# CHEVROLET ADVANCE-DESIGN

### **TRUCKS**



Whatever the job you have for a truck, Chevrolet has the truck that's right for your job! It's a new Chevrolet Advance-Design truck, built to cut your trucking costs down to

rock bottom. Saves you money when you buy, because the purchase price is low. Saves money right along, because no other truck in its price class offers the great combination of ruggedness, durability and economy you get in Chevrolet. Just look at the extra value features that make Chevrolet trucks stand up better, bandle easier, cost little to run and maintain. Your best truck deal is the deal you get on a Chevrolet Advance-Design truck at your Chevrolet dealer's.

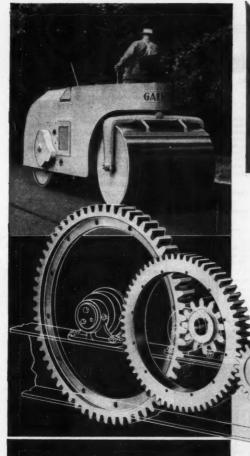
CHEVROLET DIVISION OF GENERAL MOTORS DETROIT 2, MICHIGAN



#### ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD EN-GINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load . POWER-JET CARBU-RETOR-for smooth, quick acceleration response • DIAPHRAGM SPRING CLUTCH-for easy-action engagement . SYNCHRO-MESH TRANSMIS-SIONS—for fast, smooth shifting . HYPOID REAR AXLES-for dependability and long life . NEW TORQUE-ACTION BRAKES-for lightduty models . PROVED DEPEND-ABLE DOUBLE-ARTICULATED BRAKES -for medium-duty models • NEW TWIN-ACTION REAR BRAKES-for heavy-duty models . NEW DUAL-SHOE PARKING BRAKE-for greater holding ability on heavy-duty models NEW CAB SEATS—for complete riding comfort . NEW VENTIPANES -for improved cab ventilation • WIDE-BASE WHEELS-for increased tire mileage • BALL-TYPE STEERING -for easier handling • UNIT-DE-SIGNED BODIES—for greater load protection • ADVANCE-DESIGN STYLING—for increased comfort and modern appearance.





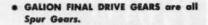
### IF YOU KNOW GEARS

- you know that gradual reduction and low speeds (each gear with roller bearings) plus a straight-line spur gear train, develop the least friction and consequently cause the least gear wear. That is why Final Drive gears on Galion Tandem Rollers last the longest without adjustment or replacement.

#### REMEMBER !

ROLLER RELIABILITY – depends largely on its FINAL DRIVE mechanism





- GALION FINAL DRIVE is a two step gear reduction train thru four spur gears — a straight line drive.
- GALION FINAL DRIVE greatest gear ratio is only 5 to 1.
- GALION FINAL DRIVE spur gears are special alloy steel, accurately machine cut and heat-treated. No ordinary, uncut, cast gears are used.
- GALION FINAL DRIVE has no small beveled pinion gear driving a large bevel ring gear on the roll.

Think of these advantages of the Gallon Spur Gear Final Drive before you buy a tandem roller.

#### TANDEM ROLLERS

THE GALION IRON WORKS & MFG. COMPANY

General and Export Offices - Galion, Ohio, U. S. A. Cable address: GALIONIRON, Galion, Ohio

#### LUBRICATION ECONOMY

### "We use LUBRIPLATE on big, hot, heavy bearings too!"



So states the plant engineer of the National Container Corporation of Jacksonville, Florida. In referring to the lubrication of their huge rotary kiln the said, "Since changing to LUBRIPLATE No. 8, wear on all bearings and journals has been reduced to a minimum."

- 1. LUBRIPLATE reduces friction and wear
- 2. LUBRIPLATE prevents
- 3. LUBRIPLATE is economical to use

Write today for case histories of savings made through the use of LUBRIPLATE in your industry.

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THE JOB. You'll find just the unit you need in this newly designed, complete line!

MANUFACTURING CO.

31 Shear St. Binghamton, N. Y.

#### **NEW EQUIPMENT BRIEFS**

Automatic ring packing, called "Uneepac" is offered in various compositions to suit needs of water, steam, air, oil, gas, vacuum conditions. Available for shafts % in. dia and up, it is furnished in sets of endless or split rings by Johns-Manville, 22 E. 40th St., New York 16, N. Y., who claims it is particularly valuable in the design of new equipment. Since it does not depend on gland pressure for sealing, friction is reduced, with less wear on both rod and packing.

Compact wall-mounting Powereel can be permanently mounted in or on trucks, watts, etc. to make easy and efficient handling of electrical cable. A special mounting flange can be bolted in place, and is threaded to fit a 1-in. conduit for feeder connections. It will accommodate sizes up to No. 4 four-conductor cable. Sold without cables or plug, these are available on request.—Industrial Electrical Works, Dept. 52, 1511 Chicago St. Omaha 2, Neb.

An outdoor spotlight which provides 100,000 cp with only a 300-w rating has been announced by Stono Electric Products Co., Elizabeth, N. J. According to the manufacturer, the new unit has been designed to concentrate its output in a long-throw, oval-shaped, narrow floodlighting beam. Up to five units may be mounted in a cluster light assembly.

A new photographic reproduction paper which produces black and white photo intermediates directly from blueprints and other negative originals has been annouced by Eastman Kodak Company, Rochester 4, N. Y. No darkroom handling or special reproducing equipment is needed. It will soon be available in a variety of standard-sized rolls and sheets to meet the needs of draftsmen, engineers and blueprinters.

Planning and layout of machinery, men, tool racks, cabinets, etc., can be done on a floor plan by using three-dimensional models of Visual Planning Equipment Co., Pennsylvania Ave., Oakmont, Pa. A photographic film templet, coated with pressure-sensitive cement, matches each piece in the model layout. Once the layout is complete, these Photo-Repro-Templets are secured in place on a film grid sheet which becomes a master from which as many prints as needed may be secured.

SINGLE TWIST BITS are available in nine sizes ranging from 8/16 to 16/16 from the Midway Tool Company Inc., Melvin, Ohio. Manufactured with hand brace shanks or square shanks for bar handles, they also come furnished with spur or spurless heads and with or without screw tips

### Send for your easy-to-use Veivetouch Catalogs today

Here's your answer to the jab of ordering replacement clutch plates, facings and brake linings. These catalogs give you, in handy readyreference form, all the information you need to quickly select and specify the Velvetouch parts you want.

They're individualized catalogs...one for Caterpillar equipment, one for LeTourneau, one for Allis-Chalmers, and one for International... so that you don't have to plow through dozens of unrelated listings to find the items you require.

Just fill-in and mail the coupon, and we'll send your copies at once . . . together with a brief, interesting story explaining why Velvetouch allmetal clutch plates, facings and brake linings are "standard equipment with the leaders!"

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Velyetouch

How to Save Wear and Tear on Your Hair



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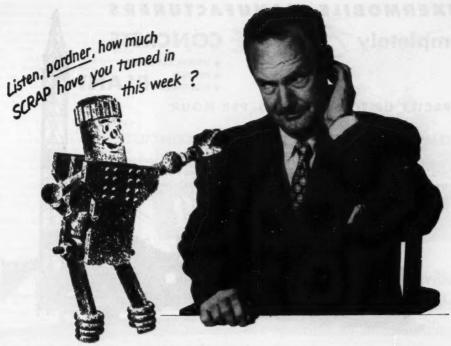
Sure as shooting... someday in the not too distant future, water will be slowing up work on the job; or you'll need some instant power to get electric tools into operation or for floodlights on night work. Well, if you haven't got those pumps or generators handy or, if the ones you have are pretty tired, beaten up and just can't come up to the job, that's when

you'll feel like pulling your hair out by the roots.

Why not, right now, place your orders for Homelite Carryable Pumps and Generators. Sure deliveries are somewhat delayed... as it is with all good wanted equipment. But an order today might save the day in the future. You'll have pumps and generators handy... and the very best, Homelites.

Manufacturers of Homelite Carryable Pumps • Generators Blowers • Chain Saws





### Today, the steel business is your business

-it needs all your SCRAP, Now!

Suppose that every steel user were suddenly told that he had to turn in a half-ton of scrap before he could get a ton of steel. It would start the most gosh-almighty treasure hunt for scrap that ever happened.

In effect, this "no-scrap, no-steel" situation virtually exists. For without all the scrap that industry can search out and start on its way to the mills, steel production will surely drop. It's as serious as that.

More scrap is urgently needed. Today the mills are turning out more steel than ever before. But they're scraping the bottom of the barrel as far as scrap is concerned. Defense and domestic demands for steel simply cannot be met unless at least 100,000 tons of "purchased" scrap roll into the furnaces—every day.

The bulk of this scrap must come from industry. That's why we're asking for your all-out help. That's why it's so important that you make the drive for scrap part of your daily operations. Make it your business to encourage every employee to report any obsolete, broken or worn-out machinery, tool or equipment that has seen its day. From this dormant "junk" must come the heavy melting scrap that the mills need most. Don't let your scrap lie idle; send it on its way. How about it, pardner?

You'll find your local scrap dealers listed in the yellow pages of the phone directory.



This page would ordinarily be used to tell you about

#### U-S-S CARILLOY STEELS

but, because without SCRAP we cannot produce steel, we are asking instead for your all-out help in getting more SCRAP to the mills.

UNITED STATES STEEL COMPANY, PITTSBURGH - COLUMBIA STEEL COMPANY, SAN PRANCISCO TEMNESSEE COAL, IRON & RAILROAD COMPANY, BIRNINGHAM UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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UNITED STATES STEEL

### MIXERMOBILE MANUFACTURERS

completely 7

CONCRETE

- **WEIGH BATCHING**
- · MIXING
- ELEVATING PLANT

CAPACITY UP TO 50 CU. YDS. PER HOUR

#### FROM RAW MATERIALS TO POURED CONCRETE

This ruggedly built trio means more jobs covered...reduced labor costs...savings in time and expense of making stationary installations. All functions are performed by one operator on each unit. Completely portable equipment travels at normal highway speeds...setup time for complete operation is 15 minutes or less.



#### MIXERMOBILE WEIGH BATCHER . Model WB-1

Completely portable unit weigh batches aggregate on the job. Can be charged with front end loader from storage piles or directly from dump trucks. Single operator sets up unit for operation in 15 minutes. Weigh batches up to 50 cu. yds. per hour.

- Three 7 cs. yd. bins and 2 cs. yd. skip store
   up to 23 cs. yds. of aggregate.
   Weight, 17,800 lbs: height, 12 ft.; width, i
- Charging skip hydraulically operated.
- · Bin selector located by skip control directs skip.
- · Weight, 17,800 lbs; height, 12 ft.; width, 8 ft.; everall length, 28 ft. (with skip down).
- Mounted all around on 8.25x20 tires.



#### 2-YD. MIXERMOBILE · Model M-7

Completely mobile concrete mixing and elevating plant eliminates cost of hauling and erecting expensive equipment. One man handles the entire operation from mixer to deck.

- Improved batch-timer and counter insures positive mixing time.
- · New electronic water meter gives unerring accuracy.
- Sturdy planetary drive holst clutches give extra power, durability.
- · Mixes up to 50 cu. yds. per hour.





Write for literature and address of your nearest dealer. le Manufacturers resi

SCOOPMOBILE · Model C. The versatile Scoopmobile with exclusive planetary drive has 7 "quick change" attachments. Standard 34-cu. yd. scoop bucket permits operator to keep Weigh Batcher unit performing to full capacity.

- Transports, elevates and pours concrete. Loads and transports aggregate.
- · Lifts and places form panels, timbers, etc., up to 4,000 lbs. capacity.

ATTACHMENTS INCLUDE: Scoop buckets in various sizes, swivel and standard type concrete hoppers in % cu. yd. capacities, lift torks, crane boom, track extensions with braces up to 26 feet overall.







Portland 20, Oregon

Bearings shipped to the armed forces for materiel are subjected to severe climatic and storage conditions as well as rough handling. Moisture, dirt, salt water, etc., all have damaging effect. Timken Roller Bearing Co., Canton Ohio, is packaging theirs in metal cans which they believe can stand up under worst conditions for ten years. New types of packaging will undergo severe tests before being offered to Unice Sam.

MERCURY VAPOR FLOODLIGHT weighs only 10 lb and is available in a wide variety of brackets and pole-and-clamp assemblies from NEPO Manufacturing Co., 527 S. Wells St., Chicago 7, Ill. A spun aluminum reflector has permanently sealed-in glass lining which assures lasting cleanliness. For use with E.H.1, J.H.1, and A.H.1 lamps.

BUTLER WATER FILTER, when attached to the cooling system of a car or truck, is said to remove and prevent rust scale and corrosion; also to collect sludge in an easily-removed glass bowl. Made by Butler Engineering Company, 2612 Rousseau Street, New Orleans 13, La.

HEAT RESISTANT PAINTS—Application and product data for five kinds of paint are listed and described on a single-sheet bulletin.—Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio.





# Industrial Friction Materials are specified by most leading manufacturers of earth moving equipment

When it's time to replace clutch and brake friction materials on your own machines, here is something worth considering.

Manufacturers with a vital interest in the performance of their equipment prefer J-M Industrial Friction Materials! Time and again they have set records for endurance and low-cost operation. Whether in block, lining, facing or cone form, J-M Friction products are engineered for the job—formulated for maximum service life and top performance. Rigid manufacturing and inspection controls insure uniform high quality and reliability.

Be sure that your equipment will continue to give the excellent service the manufacturer originally built into it. Take a tip from the machine makers. Replace with genuine Johns-Manville Friction Materials.

Write for your copy of "Johns-Manville Industrial Friction Materials" FM-12A. It contains a wealth of important application and performance data. Address: Johns-Manville, Box 290, New York 16, New York.

# Johns-Manville INDUSTRIAL FRICTION MATERIALS No. 1 With Leading Manufacturers



This quarry-bar mounting holds the rock drill on a movable saddle, permitting closely-spaced holes to be drilled in perfect alignment. Rods of Bethlehem Hollow Drill Steel at the right are flired with detachable bits.

The Rock of Ages quarry at Barre now has a depth equal to the height of a 27-story building. The area of the opening is about 40 acres. Largest source in the world for monumental granite, this famous operation was vaited by 17,000 sightness in 1950.



## ROCK OF AGES from the rugged hills of Vermont

For more than a half century Rock of Ages granite has been a symbol of unyielding strength and everlasting beauty—a rock whose fine-grained texture is worthy of the highest skills in sculpture, architecture, and memorial carving.

Granite at its finest is found in the Rock of Ages quarry near Barre, Vermont. It occurs not in strata, but in the form of huge boulders—a geological formation that releases its treasure with great reluctance.

A dense, igneous material, Rock of Ages granite is a compact mixture of feldspar, biotite and quartz—the hardest of the constituents. Blasting is seldom used in quarrying because the beauty

and texture of the premium granite would be marred.

Usually a line of closely-spaced holes is drilled in one direction; others are drilled at right angles to the first. Wedges are then driven into the holes to break the block loose. It all sounds very simple. But it sometimes requires as long as two months of patient drilling for two men to channel and break out a block 30 ft long, 30 ft wide and 15 ft high, weighing about 135 tons. And 80 per cent of all material hoisted from the quarry is unusable for memorial purposes.

The drilling of this hard, densegrained rock calls for special equipment and good steel. Every bar of hollow drill steel used at this Rock of Ages quarry is exclusively Bethlehem. This fine steel gives dependable, economical service.

#### BETHLEHEM STEEL COMPANY BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation Export Distributor: Bethlehem Steel Export Corporation



BETHLEHEM HOLLOW DRILL STEEL

#### New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and moterials available for your use.

TRUCKERS' TIPS - GMC dealers are distributing a new booklet to truck owners titled "Tips to Truckers in the Emergency." It contains advice on preventive maintenance; what to do, when to do it, and where to obtain parts and accessories. It contains also some homespun parallels, such as comparing too much free travel in a clutch to too long a rope on a dog. Excess in either case may lead to trouble or damage.-GMC Truck and Coach Div., General Motors Corp., Pontiac 11. Mich.

CONCRETE FLOOR FINISH - A mixture of tough aggregates, called "Monorock," when cast dry on concrete floors, penetrates, interlocks and becomes an integral part of the monolithic slab, says this 4-p booklet. A cement floor finish of lowwater ratio, it is adaptable to a broad range of commercial and industrial floor locations. - General Floor Co., 110 E. 42nd St., New York 17, N. Y.

STANDARDS FOR MULTIPLE V-BELT DRIVES—Issued jointly by the two organizations listed below. as developed and approved by their technical committees. The data is based on latest engineering and research, and indicates proper sheaves, and belts to be used for optimum efficiency and economy of the complete drive in relation to the particular duty required. Standards may be obtained at a cost of \$1 for two copies. Write either—The Multiple V-Belt Drive Assn., 7 W. Madison St., Chicago 2, Ill. or The Rubber Manufacturers' Assn. Inc., 444 Madison Ave., N. Y. 22.

STANDARD MIX TABLES - The Perlite Institute has completed a series of five recommended standard mixes for lightweight insulating perlite concrete. With these tables, as an example, an architect desiring a "k" factor of .93 (thermal conductivity) can determine what wet density, as poured, will develop the desired insulation value. A contractor can determine proper mix of cement, perlite, water and air-entraining agents, and order supplies accordingly for his particular pour. Designers can tell in advance what the weight and compressive strength of dry concrete will be. Copies of the chart are available upon request.-Perlite Institute, 35 W. 53rd St., New York 16, N. Y.



MODEL K-12-2, 3 H. P., 4-cycle, single cylinder, air-cooled. Length 14°, width 14°, height 19°. Weight 43 lbs.

#### RELIABLE POWER FOR:

Pioces - Road Ollers - Compressa Floor Sweepers - Conorators - Hoists Lift Trucks - Contribugal Pumps Portable Saws Snow Removed Equipment Sprayers - Vibrators

### KOHLER **ENGINES**

#### Four-Cycle, Air-Cooled

Kohler Engines are engineered and built to give the economical service that has won world-wide acceptance for Kohler Electric Plants in construction and other industries. Made in several sizes, they are suited to a wide range of uses. Kohler engineers will gladly assist in working out applications for your particular requirements. Write for information.

Kohler Co., Kohler, Wisconsin, Established 1873.

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#### WELLMAN Williams Type MORE YARDAGE PER DAY



· Elimination of excess materials and careful weight distribution permit rapid, rhythmic operation of Wellman Dragline Buckets. Operators can cover a wider digging radius with this streamlined bucket.

Built of special alloy steel, using strong welded design, Wellman buckets provide strength and stamina for longterm economy. Perforated designs also available. You'll do better with Wellman.

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DRAGLINE, CLAMSHELL, CUSTOM-BUILT BUCKETS . STONE AND WOOD GRABS

### NEED STEAM?



LUCEY 104 H.P. 150 and 250 lb. W.P. Skid mounted with 24" oil burning base.

#### Inside Seal-Weld **BOILERS** Double Calked

- 1. 1040 sq. ft. heating surface.
- 2. 160 cu. ft. furnace volume.
- 3. Ample steam volume 54 cubic feet.
- 4. Oversize seamless firebox.
- 5. Butt straps calked and seal welded inside.
- 6. Four-inch water space around firebox.
- 7. Boilers available from 40 to 150 H.P. Working Pressures from 125 to 350 lbs.

Write for descriptive literature.



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1312 STERLING BLDG.

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to keep jobs

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BREECHINGS FLY ASH REMOVAL UNITS ASME UNFIRED PRESSURE VESSELS

The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

JOHN W STANG CORPORATION

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BELT CONVEYOR IDLERS-This 42-p booklet contains information on all the latest designs and developments of belt conveyor idlers, trippers, seals etc. Two pages contain general engineering information helpful in determining, designing and specifying belt idler equipment. One section deals exclusively with the Rex self-aligning return belttraining idler, together with material on the new steep-angle troughed belt idlers. Still another section describes zipper bunker seals and information on correct maintenance procedure. -Chain Belt Co., Dept PR, 1600 W. Bruce St., Milwaukee 4, Wis.

ELEVATING TOWER-A descriptive folder is now available announcing a new lightweight, materialhandling tower. Of 3,000-lb capacity, it is of panel type and made of lightweight tubular steel. Ideally suited for erection in confined places, it contains only 11 component parts. It is built of prefabricated panels with integral notch-locking mechanisms, requiring no bolts or nuts for braces or girts.—American Tu-bular Elevator Co., Zelienople, Pa.

SAFETY DEVICES-This catalog supplements the company's current Condensed Catalog by including many interesting facts on the new liquid level controls for special applications, float controls and related devices for steam and hot water boilers. It is invaluable in solving special boiler water level control, liquid level control and relief valve problems. Other items covered: boiler water feeders, low water cut-offs, float-operated switches, float valves, solvent still regulators, electrical and flow switches.—McDon-nell & Miller Inc., 3500 N. Spaulding Ave., Chicago 18, Ill.

PORTABLE ELECTRIC TOOLS -The entire line of Stanley tools for working in wood or metal runs to 96 pp and is packed with information and descriptions. Included are such typical items as electric planes, portable routers, tool sharpening grinders, electric drills, Safetysaws and many others. Several of them are brand-new models and never advertised. Others are well known and the catalog brings them all together between two covers.—Stanley Electric Tools, 300 Myrtle St., New Britain. Conn.

VACU-BLASTER-Originally developed for cleaning rust surfaces from ships, this entirely different tool can blast-clean metal, concrete, brick, stone or wood surfaces. Essentially it's a blast cleaner with a vacuum pick-up, and it can be used in the same room where painting is being done, if necessary. Welding applica-tions, unusual blast cleaning applications, vacuum-pump dust collectors and accessories are all described.—Vacu-Blast Co., Inc., 350 Peninsular Ave., San Mateo, Calif.

### UNIVERSAL Spirolocs HEAVY DUTY TIES FASTEST-SAFEST-LOWEST COST



UNIVERSAL Spirolocsheavy duty Form ties ... Permanent, reuseable equipment...fast acting Acme threads...washers and stud rods last indefinitely only inexpensive threaded tie rods expended.

Spirolocs provide fast erection...easy stripping... available in various timesaving combinations to fit the exact needs of your job.

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#### Greater Tie Strength For less money with Spirolocs

5,000# Ties with %-Tie Rods

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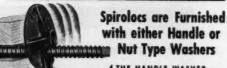
14,000# Ties with %-Tie Rods 20,000# Ties with %-Tie Rods

#### SPIROLOC CONE NUT ASSEMBLY



The only fast acting form Tie with an absolutely positive spreader...assures smooth surfaced, watertight walls.

> Write for complete details on SPIROLOCS and ask for catalog describing Universal Form Tying Accessories.



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DRM CLAMP CO. Concrete Form Specialisis Since 1912 6-38 NORTH KOSTNER . CHICAGO 51, ILLINOIS . CAPITOL 7-1600 General Offices and Factory

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Service Wherever You Build...Coast-to-Coast

# THOROSEAL Restored this Filtration Plant

#### BEFORE

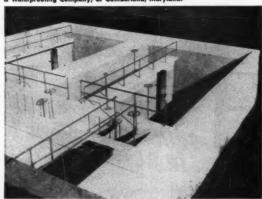
Example of complete break-down of mazonry, due to penetration of water into body of concrete and action of frost in damp masonry.



It is amazing how THORO System products will correct a condition, such as shown in photograph. Concrete was sandblasted to remove all disintegrated material to sound concrete surface and reinforcing rods. Patching was done with THORITE Patching Mortar, bringing blistered areas to true and even lines, followed by two applications of WHITE THOROSEAL for protection.



At minimum cest, almost ½ the cost of other methods, cencrete restoration, patching and surface protection was completed with THORO System products on Filtratine Plant in Keyser, West Virginia. Contractor: Standard Construction & Weterproofing Company, of Cumberland, Maryland.



WATERPLUG
To Stop Leaks

THOROSEAL
To Seel Surface

QUICKSEAL

Our 20-page Brochure describes, in detail, how The THORO System products can benefit you in your construction plan. Send for brochure today, which shows methods of application and how to use the material.

Standard Dry Wall Products



VERTICAL TURBINE-TYPE PUMPS—Catalog 7228 describes this APH-APK line, available in single- or multi-stage construction from 6 to 30 in. Capacities run to 15,000 gpm and 250 psi. Particularly applicable to bulk liquid transfer, cooling towers, dewatering and wherever suction is taken from an open source, they are available with open waterlubricated, or enclosed oil-lubricated shafts. APH line pumps range in size from 10 to 30 in., APK's from 6 to 24 in. — Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

CARBON BRUSHES — Their design, application and manufacture for use in electrical equipment are discussed in this 28-p booklet, which also contains a section on brush terminology, grade recommendations, and engineering services offered in that line by the company.—General Electric Co., Schenectady, N. Y.

ALLOY STEELS—Element effects, critical points, forging, machining, welding and thermal treatment of these steels are covered in Bulletin No. TDC 149. Help is also offered in solving problems involving use of alternate grades of low carbon or carburizing grades of tubing steels.—The Baboock & Wilcox Tube Co., Beaver Falls, Pa.

TRACTOR FLEET APPLICATIONS
—Use of tractors in earthmoving, mining, pipelining, logging and railroad operations is described in a highly illustrated 8-p mailing piece entitled "International TD-24 Fleets." In addition to pictures and data on the fleet operations, the folder also lists mechanical features of their 148-hp drawbar pull. Ask for Form CR-107-A from any International distributor or from—International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

FIREPROOF FILES — These units for use in storing your vital specifications, tracings and drawings are described in a new two-color, double-fold brochure which illustrates the fallacy of "fireproof" buildings. Entitled "How Safe Are Your Drawings," handbook SC 688 indicates increased danger to drawings under defense or war conditions.—Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y.

AUTOMATIC SCREW MACHINES
—These units are described in detail, especially the Cleveland Model
AB single spindle automatic. It features 112 spindle speed selections
from 24 to 1,820 rpm, change of
gears without removal of nuts, extra
chip capacity and easy chip removal,
and independent cutoff. It can be
changed from a bar machine to a
chucker in 30 min by substituting a
simple chucking attachment for the
bar feed assembly in the spindle.—
The Cleveland Automatic Machine
Co., Cincinnati 12. Ohio.

### You move more yardage...faster...at less cost!

# when you "grease on the go" with ALEMITE portable service stations

You Save Time by bringing complete power lubrication to equipment right on the job! Air operated pumps deliver grease or gear oil direct from "barrel-to-bearing." Free from dirt! Free from dust!

You Save Money by cutting the costly equipment "downtime" required for lubrication, thereby increasing the output of both your men and machines.

You Save Equipment by keeping your earthmoving rigs running smoother, longer—no matter how far afield they may be! And, you reduce greatly the possibility of bearing failures.

#### Now 5-E-C-T-I-O-N-A-L-I-Z-E-D to make up any portable greasing rig you want!

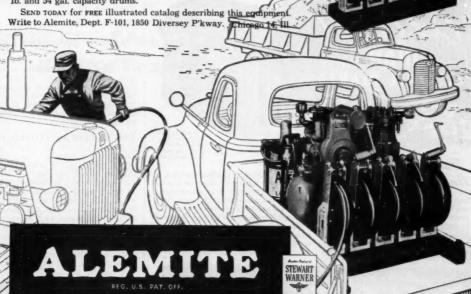
You can suit your needs EXACTLY with Alemite! Whatever selection of chassis or gear-oil pumps and reels you require for 100 lb. drums, you can easily combine them into one portable rig for on-the-job lubrication!

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Alemite Pumps. Air-operated for delivering pressure gun grease, and gear oil from original drums. Available for individual or "group" installation.

Alemite Hose Reels. For high and lowpressure delivery of pressure gun grease, gear oil, and air. Available in single or multiple units to suit any requirement.





- For joining grader, trencher, ditcher and other earth moving conveyor belts.
- For belts 3/8" to 1/2" thick.
- ► A FLEXCO fastener that is HINGED. Has removable hinge pin.
- Troughs naturally, operates through take-up pulleys.
- Strong, durable . . . pull or tension is distributed uniformly across joint.

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FLEXIBLE STEEL LACING CO. 4699 Lexington St., Chicago 44, III



to 3,000 watts. D.C. —750 to 5,000 watts. Heavy-duty models to 35,000 watts.

HARD FACING ALLOYS—There are many Colmonoy alloys, developed to combat different types of wear—abrasion, corrosion, impact, etc. This booklet explains what different forms they are made in to suit different methods of application.—Wall Colmonoy Corp., 19345
John R. St., Detroit 3, Mich.

CONCRETE CRIBBING-How it is made, its principal advantages and uses, typical sections, specifications and installation instructions are included along with several excellent photos of installations in this 8-p booklet. The manufacturer offers engineers and architects specific information on particular jobs upon receipt of information such as wall length and height, cross-section, soilbearing power, kind of fill material, critical clearances, amount of water in fill and surcharge or superimposed loads.-Universal Concrete Pipe Corp., Columbus, Ohio.

ARC-WELDING ACCESSORIES — This folder illustrates and describes the features and advantages of cable connectors, electrode holders, terminal connections and other welding accessories. Manufacturing facilities now under way will soon allow further expansion of line of holders and connectors.—Cam-Lok Div., Empire Products, Inc., Dept. R, P. O. Box 98, Cincinnati 36, Ohio.

LABORATORY TESTING APPA-RATUS—Here is a suggested list of apparatus for laboratory tests of concrete and bituminous materials for road testing and airport construction compiled by — Central Scientific Co., 1946 Daily News Bldg., Chicago 6, Ill.

SOIL TESTING SERVICES—Now in the process of preparation is a new and complete Soiltest catalog covering a complete line of soil testing apparatus. This will replace a brochure and follow-up bulletin now available which include: humidity cabinets, tri-axial accessories, samplers, pumps, meters, permeameters etc.—Soil Testing Services Inc., 4520 W. North Ave., Chicago 39, Ill.

RETURN LINE ANTI-CORROSIVES -All raw waters in return lines contain bicarbonates, and under boiler temperatures carbon dioxide may be passed out, leaving normal carbonates which are corrosive. This folder, a 4-pager designated as No. 5013, tells about two preventive treatments. Formula 700 dissolves in the condensate and reacts with carbon dioxide, preventing carbonic acid from forming. A new filming type amine, Formula 702, forms a continuous film in these return lines. coating them against both oxygen and carbon dioxide corrosion. Test procedures for both treatments are also included in the booklet.-Dearborn Chemical Co., Merchandise Mart Plaza, Chicago 54, Ill.

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supply instantly-available power any-

where for lights, drills, saws, pipe-



### Gradall solves tough excavation problem on San Francisco Reservoir project

THE San Francisco Water Department recently completed a difficult excavation job according to schedule, thanks to the Gradall. In building a 30,200,000 gallon reservoir, it was necessary to excavate for the foundations of over 500 columns which will support a concrete "roof" over the reservoir. This meant that clean, vertical cuts were needed—and more than 100 of the footings were on a 2 to 1 slope of the reservoir's banks.

Yet the Gradall completed the job simply and speedily—while virtually eliminating slow, costly hand labor!

This story is just one more example of the Gradall's extreme versatility. But it's no exception. Hundreds of owners all over the country are discovering that the Gradall handles more types of construction work—more simply—than any other machine. For instance, in pipe line work, it digs the trench, lays the pipe and backfills to complete the job. You can use it to cut grades for curbs and gutters, to dig up trees, to remove pavement. It works in "tight" places inaccessible to other

machines. And it's always "ready to go"-ready immediately to be driven to the next job at truck speed.

Your Gradall Distributor is also "ready to go" with a field demonstration. We'd suggest calling him-soon.

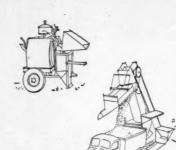
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IN OVER 60 PRINCIPAL CITIES
IN THE UNITED STATES AND CANADA



GRADALL - THE MULTI PURPOSE CONSTRUCTION MACHINE

do you know...





...that you have the best, if your construction machinery is driven by Rex Chabelco Steel Chain?





It's true . . . and it's proved

by the outstanding dependability and performance of this heavy duty, high strength chain. Makers of all types of construction equipment—shovels, loaders, cranes, mixers, pavers and many others—specify Rex Chabelco for only one reason: they know from experience that Rex assures them most years of trouble-free service at lowest overall cost.

You'll get added performance from your machines by insisting on Rex Chabelco for the heavy jobs of power transmission. Chain Belt Company, 1664 W. Bruce St., Milwaukee 4, Wis,



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TACKLE BLOCKS-Here's a fine, carefully written 52-p booklet which serves a double purpose. It's a complete catalog of size, service and design data for the company's tackle blocks and accessories. At the same time it's a handy reference guide and manual, containing sections on me-chanical advantage, formulas, horse-power, reeving, etc. Each description of a tackle block or device is accompanied by a photo, and includes tabular data on block size, rope diameter, outside sheave diameter, rim width and center-pin diameter, tackle block weight and safe working load. Write on your company letterhead for catalog 51-B to-The Upson-Walton Co., 12500 Elmwood Ave., Cleveland 11, Ohio.

PACKAGED STEAM—Here is an informative booklet about Steam-Pak Generators showing all manufacturing, installation and operating advantages. An open-fold center sheet shows a self-explanatory cutaway view of one of the boilers for packaged heat, packaged hot water, packaged steam and packaged power. Complete details of specs, applications and dimensional drawings are available.—York-Shipley Inc., York, Pa.

FORK TRUCK DO'S AND DON'TS
—Fork truck drivers will enjoy reading this booklet titled "Safety Saves" and will benefit greatly by adhering to the common-sense safety rules it presents. The warnings and admonitions are easily accepted, since they're written cleverly and supported with cartoons of hapless operators. It's a good fundamental book for newcomers and a fine refresher to the "1000-hr" men. Pocket size, it's 24 pp long and available from—Clark Equipment Co., Industrial Truck Div., Battle Creek, Mich.

TAPS AND REAMERS-Two catalogs that are inseparable, one a 16pager and the other 12 pp long, describe DoAll taps and DoAll reamers. The first includes illustrations and specifications on hand, machine screw, nut, pulley, pipe, tapper, hook and special taps, along with 9 pp of technical data and suggestions for ordering these taps which will help in handling orders at the factory. The second has excellent illustrations at the top of each page followed by detailed listings giving technical data and prices on chucking, expansion, shell, taper pin and stub screw machine reamers. Something new has been addeddiemakers' reamers with taper of .006 per in., letter and number size reamers, decimal size chucking reamers; also taper, dowel pin, fractional, letter and number size reamers in selected sets. The tap catalog is number 51-813; the reamer catalog number 51-814. - The DoAll Co., 254 N. Laurel Ave., Des Plaines,

### these Stanley Grinders help speed construction



Here's a "must" tool on any construction job. The husky Stanley No. 610 is the ideal grinder for on-the-job sharpening of chisels, drills, crowbars, claws, etc.—all those important edge tools that high worker output hinges upon.

Powerful 1 h.p. motor drives two 10" wheels (one coarse, one fine) at 1800 r.p.m. (with 60 cy., a-c power). Seal-type ball bearings, mounted close to wheels, minimize vibration—give smooth, almost frictionless drive. Safety end covers easily removed for changing wheels.



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The Stanley No. 92 is designed especially for the toughest duty. Powerful universal motor drives 6" flare cup wheel or 9" disc efficiently and without heating under continuous use. Side handle can be used on either side.

See the No. 610 or No. 92 grinders at your Industrial Distributor's. For detailed literature, write Stanley Electric Tools, 437 Myrtle St., New Britain, Conn.



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Over 30 years of experience in the manu-facture and development of Drilling equipment.

include: Racking down from a 5-ft panel to a 40-in. width for narrow spots; shortening up a 7-ft span to 5 ft 5 in.; circling around stacks; tying around corners and recesses; angling scaffolding either outside or inside curved walls, etc. Write for Bulletin No. 130 which describes this Ezebilt steel-panel scaffolding.—Universal Manufacturing Corp., Zelienople, Pa. PRESTRESSED CONCRETE BRIDGES-This interesting booklet describes the Freyssinet methods of pre-tensioning and post-tensioning. Actual installation photos and completed structures are shown and de-

scribed, along with a table giving quantities of materials for three different types of bridges.—Freyssinet Co. Inc., 57 William St., New York 5, N. Y. PLASTIC ROCK FLOORING - A new 8-p two-color brochure contains

SCAFFOLDING TRICKS-Booklet on short cuts, kinks and tricks of

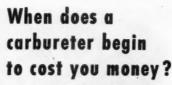
unusual scaffolding applications is now available. Some of these tricks

a combination of information on how and where to apply plastic rock flooring, as well as technical data about the product itself. Typical flooring applications are illustrated; in particular, the resurfacing of heavy traffic areas subjected to both foot and wheel movements.-United Laboratories, Inc., Cleveland 12, Ohio.

SERVICE TOOL GUIDE-If you now have or anticipate having a GM Diesel, series 71 or 6-110, you'll also want this booklet which covers special tools for servicing them. The guide contains descriptions, model applications, illustrations, tool numbers and prices of more than 150 Kent-Moore special purpose servicing tools: it's also laid out to serve as a handy tool check list and guide for ordering tools not in stock. Write the-Kent-Moore Organization Inc., General Motors Bldg., Detroit 2, Mich.

STEEL STORAGE BINS-A new pamphlet covers these and loading bins, along with information on their sizes, specifications and applications. Knife, rotary and sliding-type bin gates are described and compared to help readers make the proper choice for a particular job.—Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn.

FLUORESCENT FIXTURES - This bulletin is an addition to a larger one and the two should be filed together for a complete story on the company's "Strip Line" System. New features in this bulletin include: extremely shallow channels, special terminal blocks, interlocking construction for continuous installation, junction box-type ballast designed for remote mounting, New models are available for 48-, 72- and 96-in. Slimline lamps.—Benjamin Electric Manufacturing Co., Des Plaines, Ill.



SCRANTON 3, PA.

Engineers say: "On heavy duty equipment, the carbureter should be completely rebuilt or replaced after 800 work hours of service. This will result in an appreciable saving of gasoline and a noticeable improvement in engine efficiency and performance."

Make your replacements with Marvel-Schebler Carbureters. They are now original equipment on many industrial engines and tractors, because they give maximum dependability and economy.

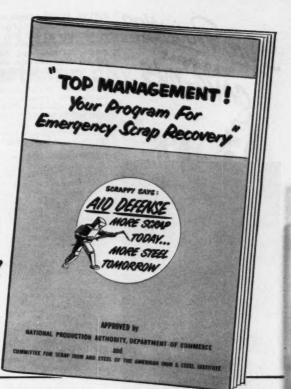
MARVEL-SCHEBLER PRODUCTS DIV. Borg-Warner Corp., Decatur, Illinois





# What YOU can do... Must do

to ease the critical iron and steel scrap problem



It's a problem calling for the assistance of every thoughtful business man-now.

Unless the steel mills get more scrap...
furnaces may have to be shut down.

Shut down—at a time when our armed forces need more and more equipment... when civilian demands for steel are greater than ever... when our economy is fighting desperately against inflation!

You Can Help. Yes... regardless of the business you're in ... you're in the scrap business, too.

If you're in the steel-fabricating bus-

iness, you have extra dormant scrap to be added to your production scrap.

If you're in any other business, you surely have idle metal that will do you—and America—more good being fed into furnaces than cluttering up your premises.

Write for Suggestions. The booklet shown here tells how to set up a Scrap Salvage Program with least amount of effort and minimum interference with your regular operation. It tells where to look for scrap, what to do with it when you get it.

You are urged to send for the booklet

now. Use the coupon.

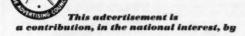
FACTS ABOUT SCRAP SALVAGE
Steel production 1950 — 97.800.000 net tone

Steel production 1950 — 97,800,000 net tons Estimated capacity 1952 — 119,500,000 net tons Purchased

scrap used \* 1950 — 29,500,000 gross tons Estimated purchased scrap requirement \* 1952 — 36,200,000 gross tons

Where will the extra tonnage come from? Mostly from your dormant metal obsolete machines and structures, tools, jigs, fixtures, gears, wheels, chains, track.

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HARD HATS—To stimulate wearing of their protective hats, MSA has published a new little booklet which will accompany every new Skullgard from now on. The booklet points out the importance of adequate head protection by listing eight typical examples from the many in their files where workmen have been saved from injury and possible death. Another section is devoted to proper care of the hat itself.—Mine Safety Appliances Co., Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa.

REVOLVER CRANES-This is a pictorial catalog, a 20-pager, with views of huge American Revolver cranes working at ports, construction sites and industrial plants throughout the world. It shows many specialized applications, short job stories, and rated lifting capacities of the five standard models. If you have a large-scale materials-handling problem now, or one coming up, don't forget to include this in your data file. It's the company's catalog 400obtainable from - American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.

MECHANICAL FOAM FOR FIRES—If you're handling or storing alcohol, ether, acetone, petroleum, or other polar solvents, you'll be interested in the new liquid-type mechanical foam that's applicable with present devices. It also offers dependable protection when applied to methyl, ethyl, isopropyl alcohols, esters, ketones etc.—National Foam System Inc., West Chester, Pa.

MANITOWOC NO. 2000 - A new catalog on this 25-ton crane and 14-yd shovel has just been released and contains 12 pp packed with information and pictures. Some of these show operation of the plunger drum clutch; others, the quick replacement of swing clutch linings; still others, the new shovel crown chain arrangement and swivel-type dragline fairlead. In-dividual diagrams show working ranges for crane, hoe, and stand-ard or high-lift shovel front end attachments. Crane capacity chart covers the full lifting range from 25 tons at 12-ft radius to 100-ft boom at 70-ft radius. Catalog 20-51.-Manitowoc Engineering Works, Manitowoc. Wis.

#### PILE FOUNDATIONS

Just Published!

Theory—Design—Practice. Provides the information required for the design, driving, and maintenance of pile foundations. Covers the relations between borings and soil mechanics and pile foundations: most effective methods of determining pile capacities from driving resistances and friction along the control of the contro



from driving resistances and riction values; selection of driving rigs; factors affecting choice of pile types, etc. Gives over fifty actual cases of pile foundation failures, with causes and remedies. By Robert D. Chellis, Structural Engr., Stone & Webster Corp. 648 pp., 6 x 3, Illus. \$12.50

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Just Published!

Shows how to solve problems in hydraulic transients by applying arithmetic integration and trial-and-error arithmetic. Filled with actual computations of structures now in successful operation, with a condensed yet adequate theoretical background for the steps prescribed. Covers problems in water hammer, surge-tank design, turbine-special regulation, stability of governing, pressures in pump discharge lines, filling systems for navigation locks, and surges in open canals. By George R. Rich, Consulting Engineer. 255 pages, 146 diagrams and tables. 37.68

#### HANDBOOK OF RIGGING

Condensed into this one book are all the tips, methods, and techniques essential to more effective rigging practices in industrial and construction operations. Deals with everyday maintenance operations.

with everyday maintenance operations with the transportation and handling of heavy machinery with the erection and demolition of smaller size structures. By W. Rossnagel, 321 pages, over 300 illus., \$4.75



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New 3rd Edition bringing you up to date on fundamentals, theory, and practice of various subdivisions of civil engineering. Covers surveying—railway, highway, and airport engineering—mechanics of materials—hydraulies—stresses in framed structures—steel design—cement and concrete—foundations—sewage disposal on water supply and purification. C. Urquantal Company of the control of

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Jaw, Reduction and Gyratory Crushers . Crushing Rolls

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Your exact trackage needs filled "Faster From Foster" Track Tools & Accessories are properly matched and fabricated to meet all re-quirements and shipped from a reliable source.

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your job requires.
Also Rent Pile Hammers, Pile Extractors. TRACK ACCESSORIES . PIPE . WIRE ROPE LB HOSYTH CO.

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- 1 TALBERT TD-25-RG-RA low-bed hauling trailer, 25 ton, removable gooseneck, removable rear axle, 18' deck, outriggers, like new. Also removable 3rd axle assembly.
- 1 LORAIN Model 40 dragline, 34 yard.

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Lyons, Illinois Lyons 3-3169

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'URES—built right in:

Double lacking spur-type grammats set in 6 thicknesses of convex every 3 feet.

Nammed on all four sides.

Water-repellent treated.

Canvax Kid Contractor type pay for themselves in added pratection! ASK YOUR EQUIPMENT DISTRIBUTOR!

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Waterproof cover for safety in shipping and storage

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• "We are happy to report . . . that the David White Universal Level Transit has our whole-hearted approval."



#### CEO. W. AUCH COMPANY

DETROIT 7. MICH.

kee 12, Wisconsin.

David Wh ear Mr. Lucke: Milw

> It is with pleasure that I write you regarding the performance of our new David White Universal Level Transit, Serial #58114.

The ease and speed with which it is set up and the accuracy of the readings taken most certainly belie its actual cost. The level has been on our largest job since it arrived and the Superintendent of the job prefers to use this David White in preference to a ...... which... requires much more "set up" time; and hence, for the ordinary shots is not mear as popular on the job. We are happy to report to you that this David White Universal Transit Level has our wholehearted approval.

> Very truly yours, GEO. W. AUCH COMPAN HH auch

Here's why you'll like a DAVID WHITE UNIVERSAL LEVEL TRANSIT too ...

The David White "Universal" Level Transit is the most practical, complete builder's instrument on the market. Now available in a new improved model — complete with internal focusing, coated optics — guarded vertical arc
— in fact every feature to assure you lifetime durability and accuracy.



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Prices subject to change without notice. We after complete, prompt repair service on all makes of instruments — levels, transits, theodolites, etc.

343 W. Court Street . Milwaukee 12, Wisconsin

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(Classified Advertising)

(Us	ed or	8	u	F	D	h	16	7	N	w	r)								
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### No Loitering

You want action—you want fast, efficient delivery of your order of Cumberland Cements—and that's just what you get.

Our traffic experts are specialists at speeding your order to its destination. They've got railroad rates, routes and schedules right at their fingertips to help them send your cements off in the quickest, most

economical way. But getting the orders on the road isn't their only job. They'll follow those freight cars step by step—and if there's trouble, it's their worry, not yours.

Moving a carload of cement can be quite a problem. But it's a load that weat Cumberland gladly lift from your shoulders—at no extra cost to you.



### Methods Memo . . .

THE BIGGEST TUNNEL ever driven entirely from shafts will soon be under way at Niagara Falls, Ont. Here a 5½-mi tunnel, 51-ft excavated diameter, will be driven by two contractors from four shafts, as part of the new 700,000-hp Adam S. Beck hydro station No. 2 for the Hydro Electric Commission of Ontario. Canadian contractors at one end will drive full face. American contractors at the other end will hole-through a full top heading before tackling the bench.

WE THOUGHT construction labor knew their way around, but they're babes in the woods compared with meat workers. Union employees of Morrell Packing Co. at Ottumwa, Iowa, are showing some real ingenuity in new contract demands. All they want-in addition to all they've already got-is a free ham at Christmas and Easter. Big hams, too, they must be, plus paid holiday for every worker's birthday, two extra hours pay per day for travel time between home and job, free lunches or 1 buck therefor, and paid lunch periods. Come on, you construction gangs, how about demanding a couple yards of concrete or fill, a reinforcing rod, a sewer pipe or a few bricks-every hour on the hour to show up those easy-going packing house workers.

WE'VE MADE a couple of editorial staff changes that will strengthen the coverage of Construction Methods and EQUIPMENT in this great field of construction operations. Ira Angstadt comes to us from Engineering News-Record to take over the important job of Managing Editor. He will be responsible for getting out the magazine each month. and will handle the myriad of details necessary for its production. He'll be our chief inside man. Henry Perez, who has served so well as Managing Editor for the last two years, becomes Senior Associate Editor, with full field coverage responsibilities. You readers will see a lot of Hank from now on, for, relieved of his inside job, he'll be spending most of his time out on construction projects-the only place we can really get the dope on construction progress you like to read about.

MOST POWERFUL suction dredge in the world is operating—of all places on the Missouri River at Ft. Randall Dam in South Dakota. To handle part of its excavation contract on the big project, Western Contracting Co. of Sioux City, Iowa, has just assembled the 11,000-hp "Western Chief" on the job, a beautiful all diesel-electric dredge with a 36-in. suction, 30-in. discharge, which ranks it with the largest suction dredges ever built. Furthermore, it's a complete knock-down job that can be dismantled and shipped overland to the next job. Complete details will be published in an early issue.

USE YOUR ENGINEERS where they will do the most good is the advice of the Engineering Manpower Commission of Engineers Joint Council. Four steps are recommended:

(1) Use engineers in jobs in which engineers only are required.

(2) Do not hold young engineers in "intern" positions longer than necessary to qualify them.

(3) Move engineers to positions of maximum responsibility compatible with ability and experience.

(4) Release engineers from positions not requiring engineering training.

IN BUILDING the imposing intake tower structure at Ft. Randall Dama complicated gated structure rising 178 ft above the channel floor-Johnson-Winston Co. has developed many a neat construction trick. One that made a big impression on us is a simple gadget, yet very effective. It's just a series of refrigerated water coolers carried upwards on the working scaffolds. Thus, drinking fountains replace the usual cumbersome water bucket or barrel. Oscar McCormick, contractor's project manager, says they have paid for themselves many times over in reduction of lost time from the workers hunting the water bucket. The workmen, too, figure that a company that thinks enough of its working conditions to supply ice water at the tap way up in the air must be a pretty good outfit to work for. Everybody's happy over the deal.

OPERATORS OF CONSTRUCTION EQUIPMENT relish an occasional thorough-going session on the use, care and preventive maintenance of the machines in their charge. This was proved again recently when a distributor, the R. G. Larkin Co., Chicago, held a one-day instruction session for 150 operators and owners on Hough Payloader tractor shovels. Equipment for demonstration was at hand and the interest shown and questions asked proved that the school was beneficial to all participants. Simi-

lar schools are planned by the Larkin organization for other areas and on other equipment. Sound like an idea that can be copied to advantage by most distributors of contractors' equipment.

ONE MACHINE stayed on the job when a mining superintendent on Northern Michigan's iron ore range ordered equipment left in place during a 15day vacation period, with the intention of having new crews work the bore meanwhile. Replacements never came, and upon return to work the vacationing miners found a Thor pneumatic column still holding up its rock drill and air bar feed-a 200-lb load. The column normally requires a constant 90lb air pressure, but it stood for the 15day period with no line pressure at all, except for the air trapped behind the automatic check valve which is designed to hold the column only temporarily, should a drop in the air-line pressure occur during drilling operations.

### CONSTRUCTION METHODS AND EQUIPMENT



#### On the Cover ...

POURING OUT hot mix for Judd Brown, Mankato (Minn.) contractor, a Barber-Greene single-aggregate continuous asphalt plant produces paving material for a local airport job. After the picture was taken, Brown added a B-G gradation control unit to this setup to produce multiple-aggregate mix for resurfacing Mankato streets. Total output during the short summer season was 82,000 tons (an hourly average of 109½ tons) with the drier removing 6% moisture from the stockpile. At least half the production was the hightype mix.



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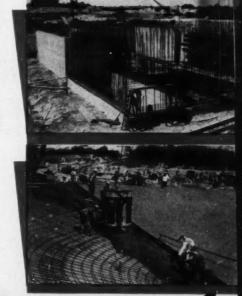
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